November 1985 U.S. $3 Canada $3.95

Just for your Sanyo MBC-550, 555 and 775

soft sector®

The Monthly Magazine For Sanyo Personal Computer Users

Power Up Your Sanyo
With These Energizing Utilities

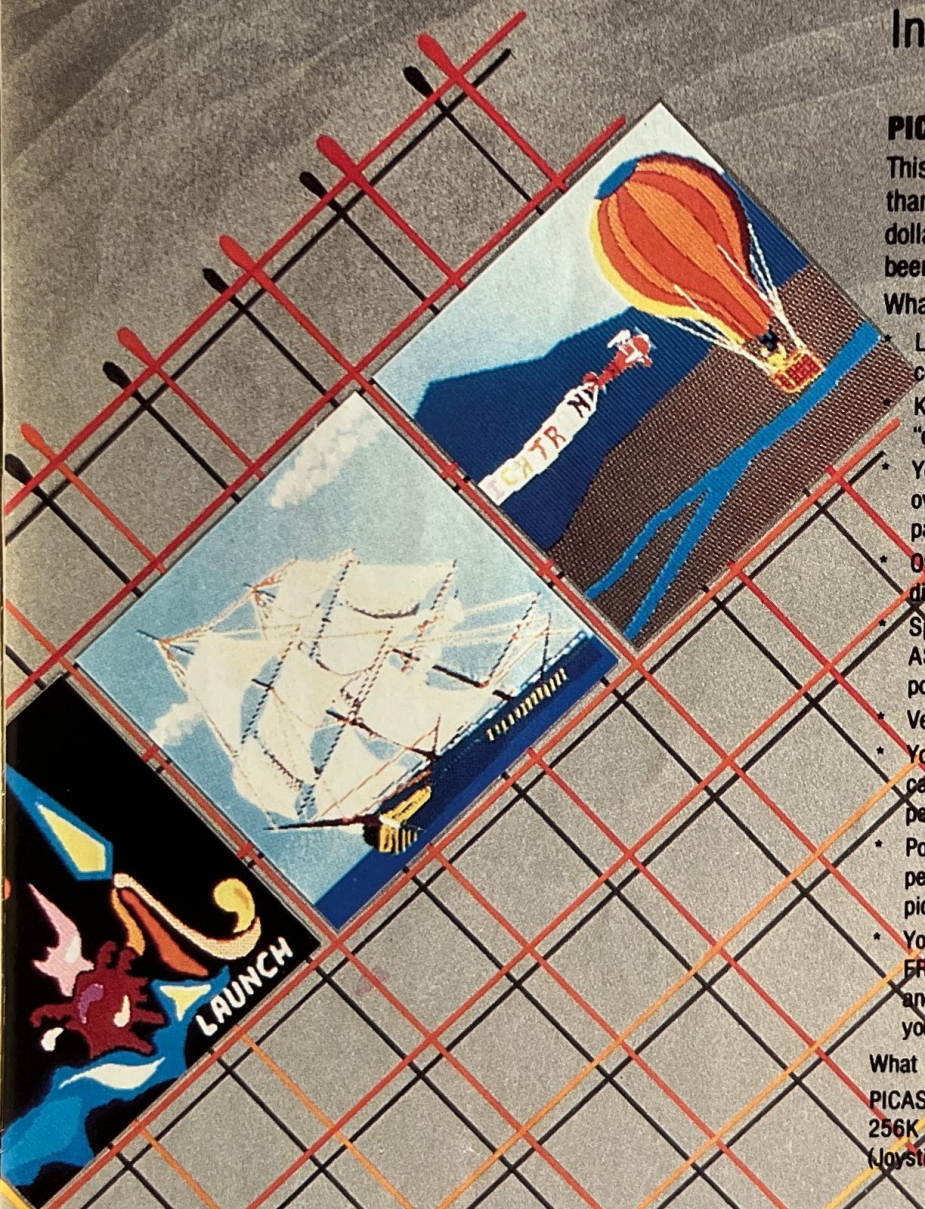
- Disk Volume Label Changer
- Four Video RAM Board Routines
- Envelope Addresser
- CardFile Information Indexer

Plus:
'Quiz Master'
Custom-Design Software

>TIME VALUE< 5195 8610
JOHN O'NEIL
24 BILTOM ROAD
WHITE PLAINS NY 10607

PICASSO

The **ULTIMATE** In Computer Graphics Programs



PICASSO by Bill Dunlevy

This is the one to set the standards! PICASSO does more than many graphics programs costing thousands of dollars more. Never before has such power and simplicity been available to the user.

What does PICASSO do? Everything!

* Large, helpful picture menus, eliminate the need to memorize control keys or cumbersome graphic languages.
* Keyboard, Joystick, or even Graphic Tablet controlled, in "directional" or "free-hand" format.
* You can choose from 64 pre-mixed colors, or mix your own for over 10,000 possible patterns, and save your favorites to a palette on disk!
* Over 20 different "brushes" let your draw with symbols in different "densities" for an air-brushed effect.
* Special "Rubber band" graphics let you see what you're doing AS you make adjustments on lines, rays, boxes, circles, polygons, stamps, etc.
* Versatile "Fill" permits you to change multi-color patterns.
* You're not restricted to simple circles and elipses here! You can create ANY kind of polygon: from triangles, to eliptical pentagons, to perfect circles and everything in between!
* Powerful "Stamp" system lets you copy, move, save, and perform complexed operations with any sections of your pictures.
* You can use your picture files with MichTron's new FREEZE FRAME graphic printing utility for fantastic hardcopy pictures, and in your own BASIC or machine language programs for all your graphic needs.

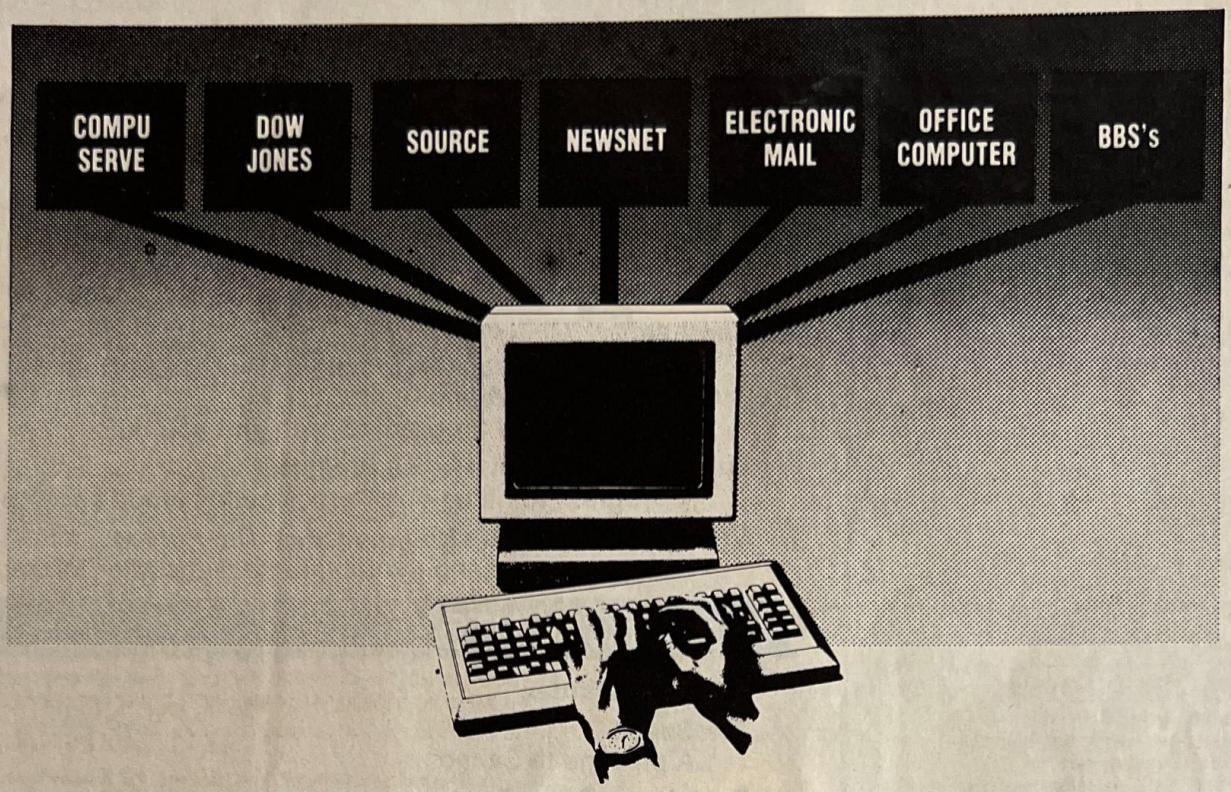
What DOESNT PICASSO do? Restrict your imagination.

PICASSO is guaranteed to knock your smocks off!
256K SANYO MBC-550/555 required
(Joystick recommended) **$99.95**

MichTron

576 S. Telegraph Road Pontiac, Michigan 48053
Orders & Info: (313) 334-5700

INTELLICOM



A COMPLETE Communications System

Now you can tap any of the countless telephone data based INFO sources, EXTRACT an FILE that data away for use later. Suddenly, your computer is the smartest terminal around because INTELLICOM emulates such terminals as:

- **DigitalVT52/VT100**
- **TeleVideo 910 • ADM3A/5**
- **ADDS Viewpoint/25**
- **CompuServe Executive**
- **Simple TTY**
- **TeleVideo 925**

Now you can transfer **both binary and text** files, using simple ASCII, ASCII Capture, Xon/Xoff, XMODEM (both Cheksum and CRC are supported) or CompuServe A Protocols. Operate at any speed up to 4800 (Sanyo) or 9600 baud (IBM PC) without ever being outdated as higher speed/lower priced modems are introduced.

Simple menu selections, with a built in **HELP** facility keep it easy forever.

And our expert mode will allow you to even bypass the menus. **Autodial directories (Hayes or equivalent modems) are supported along with simultaneous printing.** Our **built in DOS WINDOW** will actually **let you run another program** from within INTELICOM **(192K min. ram).**

Additional features: Variable Buffer Size reduces disk activity, while utilizing RAM capacity. BATch file utility program included. **Persistence feature for autodialing.**

Auto log-on script files can be used to support almost any smart modem and/or automatically log into your favorite remote system. **User defined function keys. Color support. Michtron and AOK DOS support** and more! Best of all, the entire versatile INTELLICOM package costs you only **$89.95 COMPLETE! RUSH $15 today and you'll receive a fully functional demo disk that lets you check it all out.** If you order INTELICOM, simply return the demo disk and we'll deduct your $15 from the $89.95 purchase price.

For $10.00 more we will supply you with the host support code for the error checking protocol on Dec system 10, 20, or VAX ... and save your company a bundle!

DON'T DELAY!
ORDER TODAY!
RETURN UPS SHIPMENT GUARANTEED! HURRY!

COMPUTER TOOLBOX inc.

MasterCard/VISA/COD orders accepted. Specify computer and DOS version when ordering. Connecticut residents add 7½% sales tax. **Add $5 shipping for all orders.**

1325 East Main Street, Waterbury, CT 06705
In Connecticut call: 597-0273

soft sector

The Monthly Magazine for Sanyo Personal Computer Users

Vol. II, Issue 4 November 1985

Editor and Publisher
Lawrence C. Falk

Managing Editor Belinda C. Kirby
Consulting Editors Gordon Monnier, T. Kevin Nickols
Submissions Editor Jutta Kapfhammer
Reviews Editor Monica Dorth
Editorial Consultants Tamara Dunn, Danny Humphress
Contributing Editors Fred Blechman, Michael W. Ecker, Ph.D., Tim Purves, Brian M. Stone, Charlotte A. Stone
Technical Assistant Ed Ellers, Jim Sewell
Editorial Assistants Wendy Falk, Judi Hutchinson, Shirley Morgan

Art Director Kevin Quiggins
Design Staff Tracey Jones, Heidi Maxedon, Jerry McKiernan

Chief of Typography Debbie Hartley
Typography Services Jody Doyle, Angela Kapfhammer, Suzanne Benish Kurowsky

FPSS, Ag. Publications Enterprises, Inc.

President Lawrence C. Falk

General Manager Patricia H. Hirsch

Editorial Director James E. Reed
Asst. Editorial Director Jutta Kapfhammer
Executive Editor Courtney Noe
Creative Director Sally A. Gellhaus
Manager of Public Relations Wayne Fowler

Administrative Assistant to the Publisher Judy Brashear
Asst. General Manager for Finance Donna Shuck
Bookkeeper Diane Moore
Advertising Accounts Bev Taylor
Dealer Accounts Judy Quashnock
Accounts Payable/ADP Lisa Ragan
Director of Fulfillment Services Bonnie Frowenfeld
Asst. Dir. of Fulfillment Services Sandy Apple
Customer Service Representative Diane Justice
Soft Sector on Disk Subscriptions Monica Wheat
Word Processor Manager Patricia Eaton
Chief of Production Services Melba Smith
Dispatch Janice Eastburn
Research Assistants Beverly Bearden, Laurie Falk, Sharon Smith

Advertising Coordinator Doris Taylor
Advertising Assistant Debbie Baxter
(502) 228-4492

For Soft Sector Advertising and Marketing office information, see Page 66.

SOFT SECTOR — The Monthly Magazine for Sanyo Personal Computer Users (ISSN 8755-7460) is published every month of the year by FPSS, Ag. Publications Enterprises, Inc., 9529 U.S. Highway 42, P.O. Box 385, Prospect, KY, 40059. Phone (502) 228-4492. **SOFT SECTOR — The Monthly Magazine for Sanyo Personal Computer Users, SOFT SECTOR ON DISK** and the **SOFT SECTOR** logotypes are registered ® trademarks of FPSS, Ag.

Second Class Postage Rates are paid at Prospect, Kentucky and additional offices. USPS 741-750. POSTMASTER: Send address changes to SOFT SECTOR, P.O. Box 385, Prospect, KY 40059. Forwarding Postage Guaranteed.

Entire contents copyright © 1985, by FPSS, Ag. **SOFT SECTOR — The Monthly Magazine for Sanyo Personal Computer Users** is intended for the private use and pleasure of its subscribers and purchasers and reproduction by any means is prohibited. Use of information herein is for the single end use of purchasers and any other use is expressly prohibited. All programs herein are distributed in an "as is" basis, without warranty of any kind whatsoever.

Sanyo MBC-550/555 and 775 are registered ® trademarks of the Sanyo Business Systems Corp.

Subscriptions to **SOFT SECTOR — The Monthly Magazine for Sanyo Personal Computer Users** are $28 per year in the United States. Canadian rates are U.S. $35. Surface mail to other countries is U.S. $64, air mail U.S. $85. All subscriptions begin with the next available issue.

Payment accepted by VISA, MasterCard, American Express, Cash, Check or Money Order in United States currency only.

CONTENTS

FEATURES

Four Video RAM Board Routines/*Truman Krumholz* 9
Changing screen colors and function keys with DEBUG

■ **BASIC Training**/*Fred Blechman* 11
More Sanyo BASIC graphics commands

■ **Calculator Emulator**/*Edward Kerns* 14
Using your Sanyo as a desk top calculator

Mastering MS-DOS/*Danny Humphress* 49
Learning about "power" features — device drivers

■ **CardFile**/*Dr. James K. Hardy* 22
A BASIC file program to help get you organized

■ **Quiz Master**/*Dan Webber* 30
An educational program for you and your kids

■ **Envelope Addresser**/*Wayne R. Sipler* 37
A program to help you produce neatly typed envelopes

■ **Changing Your Disk's Volume Label**/*Tim Purves* 53
A program to change your volume name after formatting

DEPARTMENTS

Advertisers Index 66

Ask Sanyo 64
A pipeline to Sanyo

Back Issue Order Form 59, 60

Business Sector/*Charlotte & Brian Stone* 62
Solutions to your applications problems

Clubs 60

Corrections 7

Helpful Hints 29, 36

Input/Output/*Tim Purves* 34
Answers to your technical questions

Letters To The Editor 6

Racksellers 65

Soft Soapbox/*Lonnie Falk* 8
News and Comments

Soft Talk 58
New products and services

Submitting Material 58

Subscription Information 59

The First Great Soft Sector One-Liner Contest 51

REVIEWS

Disk Catalog System/*Palm Bay Software* 41
FastStar/*PT Software* 43
Scripture Memory/*Bill Branham* 42
Spell/*The Software Toolworks* 44
Turbo Toolkit/*Migraph Software* 41

Cover illustration copyright© 1985 by Wes Kendall

■ The small disk symbols appearing beside features and regular columns indicate that the program listings with those articles are on this month's SOFT SECTOR ON DISK, ready to LOAD and RUN. For full details, see the SOFT SECTOR ON DISK ad on Page 55.

SERVICES

File Transfer Service: Advent provides a service beyond the ability of any format conversion software! We can transfer files between MS-DOS/PC-DOS, CP/M and other operating systems in 300 different 3 1/2", 5 1/4" and 8" formats. Includes Apple, Apricot, Data General 1, Kaypro 2000, Eagle, Epson, HP-150, and North Star computers.
Format conversion service . . . . . Call for information and pricing

SOFTWARE UTILITIES

Uniform: Your Sanyo 775 can read and write up to 80 CP/M, MS-DOS & PC-DOS disk formats.
Uniform: $69.95

Sidekick: One of the most popular programs ever written. Use Sidekick as a calculator, notepad, appointment calendar, auto dialer, ASCII conversion table and much more. On-line help if you forget any of Sidekick's many functions.
Sidekick (MS-DOS) $54.95

SmartKey II: New Release! Same great time saver as the original, allows compiling of definitions you set up with your word- processor! Makes every software program you use easier. Can reduce keystrokes by more than 50% by redefining any key on your keyboard to be any combination of characters or commands that you desire.
SmartKey II $49.95

SmartPrint: A powerful add-on to SmartKey, SmartPrint is a vesatile writing tool designed to give you full access to your printer's features such as wide, bold, condensed, underlined, subscript, superscript, and more. Works great with programs like WordStar and others.
SmartPrint $29.95

PROGRAMMER'S CORNER

Toolworks C: This compiler is a complete subset of C. The two- pass compiler produces relocatable object files (.obj) which are compatible with the MS-DOS LINK program. Mathpak provides true 32 bit floating point and signed interger data types.
Toolworks C Compiler (MS-DOS) $49.95
Toolworks C MathPak (MS-DOS) $29.95

Turbo Pascal: Borland version 3.0. The best Pascal compiler on the market.
Turbo Pascal (CP/M & MS-DOS) $69.95

Turbo Toolbox: Set of 3 utilities for use with Turbo Pascal.
Turbo Toolbox (CP/M & MS-DOS) $54.95

Turbo Tutor: Step-by-step instruction on how to use Turbo Pascal.
Turbo Tutor (CP/M & MS-DOS) $34.95

Turbo Graphics: Provides full graphics management for producing windows, pie and pie charts, circles and other geometric shapes with Turbo Pascal.
Turbo Graphics (MS-DOS) $54.95

GAME ROOM

Eliza: The pioneering artificial intelligence program, Eliza is a psychiatrist that carries on a conversation in plain English about anything you wish. Great to play alone or in a group.
Eliza (CP/M & MS-DOS) $24.95

Adventure: Explore the dangerous Colossal Cave for treasures. Endure mystical spells and overcome adversaries. The only original uncut version.
Adventure (CP/M & MS-DOS) $19.95

MyChess: This award-winning world class chess program features nine skill levels with over 850 opening moves. Prints moves and saves game in progress.
MyChess (CP/M & MS-DOS) $34.95

Word Wiggle: Scrambled letter game for building vocabulary skills of young and old. Eleven skill levels containing 40,000 word dictionary. Fast paced, fun, and educational. Great for kids!
Word Wiggle (CP/M & MS-DOS) $29.95

COOK'S CORNER

Computer Chef: - #1 in the Series. The computerized cookbook for food lovers. Contains a database of almost 100 recipes with space to add your own. Auto scale ingredient quantities, find recipes by key words or type of ingredients you want to use, then display or print your selection.
Computer Chef (CP/M & MS-DOS) $29.95

What's for Dinner - #2 in the Series: 200 main dish and dessert recipes. Requires Computer Chef program (not included).
What's for Dinner (CP/M & MS-DOS) $19.95

The Best of Wok Talk - #3 in the Series: Exotic Chinese cooking. Over 100 recipes from China. Includes Computer Chef program.
The Best of Wok Talk (CP/M & MS-DOS) $29.95

MyDiet: Create your own personal nutritional profile that will help you derive the maximum benefit out of the foods you eat. MyDiet is designed for the professional nutritionist, but is easy to use. Compares to programs costing hundreds of dollars!
MyDiet (MS-DOS) $49.95

HOME & BUSINESS CENTER

Basic Business: Stand aside DAC! Here is the ultimate price / performance package for small to medium sized businesses. Thousands of copies installed since 1978. This seven module package includes fully integrated General Ledger, Accounts Receivable, Accounts Payable, Payroll, Inventory Control, Sales Order Entry, Purchase Order Entry. Balance forward or open item A/R, complete departmental reporting, easy set-up, true audit trail. A full accounting tutorial included. All data files are dBase II & III compatible and are transportable between the CP/M and MS-DOS versions. Source Code also available.
Basic Business (CP/M & MS-DOS) $89.95

Checks & Balances version 3.6: A complete personal checking program or business register. 3.6 is completely rewritten and includes check writer and data base. It is easy to learn and use with new features including more types of reports. Complete with new 180 page manual. An excellent money manager!
Checks & Balances (CP/M & MS-DOS) $74.95

WRITER'S WORKSHOP

Punctuation & Style: Improves your writing by catching unbalanced quotes, parentheses and brackets, improper abbreviations, capitalization, sentence structure, much more. It's like having your own copy editor!
Punctuation & Style (CP/M & MS-DOS) $125.00

Word Finder: This powerful 90,000 word Thesaurus allows you to select the best word for the application. Works inside WordStar for greater ease of use. Instantly searches its dictionary, then displays synonyms, and automatically deletes the "wrong" word and replaces it with the "right" word. Requires 380K disk storage.
Word Finder (CP/M & MS-DOS) $79.95

The Word Plus: The ultimate spelling checker. Not only finds misspelled words but shows you correct spelling options, shows the word in context, allows building dictionaries of special words you use, and much more.
The Word Plus (MS-DOS) $150.00

Spell: Powerful spelling checker with over 50,000 words. Works great with Wordstar and other word processing programs. Faster than other spelling checkers used on the Sanyo.
Spell (CP/M & MS-DOS) $49.95

SCHOOL HOUSE

Math Tutors: Improve your skills in basic thru advanced math. Learning thru multiple-choice problems with help and hint functions provided. Grades 8-College. (CP/M & MS-DOS)
Algebra . . . . . $34.95 **Calculus $34.95**
Geometry . . . . . $34.95 **Trigonometry $34.95**

Reading Professor: Now you can use your computer to boost your reading speed while increasing comprehension and retention! Self paced lessons show immediate improvement and feedback. Includes several different practice exercises. Developed by skilled educators, this program tracks user's progress and monitors reading rates up to 2500 wpm. Additional reading libraries available.
Reading Professor (CP/M & MS-DOS) $59.95
Additional Libraries . . . . . (each) . . $15.95

SAT Score Builder: This program is designed to help students prepare for the Scholastic Aptitude Test required by most colleges and universities. Includes Help function.
SAT Score Builder $34.95

Call for other educational software.

ACCESSORIES & SUPPLIES

Diskettes, Double Density:
Maxell 10-pack with storage box:
Single Sided $19.95
Double Sided $23.95

3M box of 10:
Single Sided $22.95
Double Sided $26.95

Economy Diskettes package of 25 includes tyvek sleeves.
Single Sided . . . . . $29.50 **Double Sided $31.25**

Call or Write for our **FREE** catalog

All items are warranteed for 90 days. 30 day money back guarantee if not completely satisfied. Money back guarantee for software applies only if diskette seal is intact. VISA and Master Card are welcome. Please add $2.00 freight per total order and $2.00 for COD orders. California residents please add 6% sales tax. Prices, availability and specifications subject to change without notice.

DAC - Dac Software; FX - Epson Corp; CP/M - DRI; MS-DOS - MicroSoft; WordStar - MicroPro; Sanyo - Sanyo Business Systems Corp.

CALL TODAY **National** **(800) 821-8778**
California **(800) 521-7182**

Hours: Mon - Fri 8 am - 5 pm PDT

DEALER INQUIRIES WELCOME.

advent products inc.

3154-F E. La Palma Ave.
Anaheim, CA 92806
(714) 630-0446

LETTERS TO THE EDITOR

PAR AVION

RANDOM RND

Editor:

In a recent issue of *Scientific American*, there appeared a brief critique of the RND function, which may not generate all that random a set of numbers. To see this graphically, RUN this program for a few minutes;

```
10 CLS
20 X=640*RND
30 Y=200*RND
40 PSET (X,Y)
50 GOTO 20
```

A truly random set of points would produce a uniform sprinkle of dots with no discernable pattern, which does not seem to be the case for many BASICs, including Sanyo's.

It would be interesting to learn about the Sanyo RND algorithm, and whether there are better ones, should one be necessary.

Herman I. Leon
Arlington, VA

ACCLAIM FOR RECLAIM

Editor:

In SOFT SECTOR, August '84, the program "Reclaim" came just in time for me. As the editor of a professional association newsletter I had just put to disk a couple of articles and a review when I inadvertently deleted them (using DEL *,BAK instead of DEL *.BAK). "Reclaim" was a godsend. It took me an hour to key it in and to debug it (no time to wait for SOFT SECTOR ON DISK) and I was back in business. They tell me there is an MS-DOS utility called "Recover" that does the same thing, but I'm sure it couldn't work better than "Reclaim." Thank you Chuck Kincade and SOFT SECTOR.

Eric Walker
Brookfield, Australia

FAMILY TIES

Editor:

One bit of information which a few of your readers might find useful concerns genealogy (family history) software for the Sanyo MBC machine.

The Church of Jesus Christ of Latter Day Saints (Mormon) sells a set of software for the IBM machine for $35, which includes an excellent manual. This may be ordered from The Genealogical Department, Ancestral File Operations Unit, 50 East North Temple Street, Salt Lake City, UT 84150, (801) 534-2584.

If you inquire, you will be told that this software will not operate with the Sanyo machine and will be given the name of a licensee who will sell you a copy for about $100. However, the software will run on the Sanyo MBC-555 with either GW-BASIC or BASICA. Just rename the GW-BASIC or BASICA to have the same name as the IBM BASIC called for in the instruction manual when you prepare working disks.

One last change, to avoid an annoying blink when the program runs is to turn off the "blink" switch. This operation was described in the November '84 issue of SOFT SECTOR. Instructions are also given on Page 5-36 of your *Sanyo User's Guide*. Just turn Switch 3 of DTS-4 to the "OFF" position to stop the blink.

Eldon J. Edgin
Dallas, TX

SIMPLE STROKES

Editor:

Thank you very much for your useful magazine.

I have found a useful trick with *WordStar* is setting one of the function keys with *Install* or *WizStar* (SOFT SECTOR, April '85) to ^A^T which produces a one-stroke delete word left key which is very useful in revising sentences and replacing hopelessly misspelled words.

Bob Copps
Vancouver, British Columbia

BASIC FUNCTIONS

Editor:

In SOFT SECTOR, September '84, Philip MacKenzie and Jeff Sorensen indicate you cannot install or use the additional function keys 11 through 20.

However, I have found these can be programmed using the instructions in the BASIC manual (pages 3-70 through 3-73) and can be used from the keyboard in one of two ways:

1) Using the top row of number keys and holding down the CONTROL key.

2) Using the numeric key pad while holding down the SHIFT and CONTROL keys.

Floyd Brown
Lancaster, CA

Editor's Note: You're right, of course. In Sanyo BASIC all 20 of the function keys can be programmed with the command KEY x,"string" *where 'X' is the key number 1 through 20 and "string" is up to eight characters. After they have been stored, they can be displayed with* KEY LIST *to the screen and* KEY LLIST *to the printer. You can also save them to disk with* KEY SAVE"filename", *then load them back in each time you enter BASIC with* KEY LOAD"filename".

EXERCISING CONTROL

Editor:

I read in "Business Sector," in the September '85 issue a reply concerning the installation of new *WordStar* codes where it was indicated that codes could not be installed for the function keys ^PV and ^PT using the *Install* program, to be used for an Epson RX-80 printer. After several trials to install as many user patches as possible, I discovered the way to use the ^PT and ^PV sequences when I wanted to use super- and subscripts.

The procedure is to select ^PT for the beginning code of the desired control and use the other sequence for the end control. While using *WordStar*, insert the ^PT sequence to begin the control and then to end the control it is important to *repeat* the same ^PT sequence (*WordStar* will actually transmit your installed ^PV code to the printer). The codes can be reversed using ^PV as the begin code and ^PT as the end code; then insert ^PV in the text to begin *and* end the desired control.

As an example of trying to obtain maximum usefulness from the few user defined patches of *WordStar*, these are the codes I have installed:

Alternate pitch	^PA	Elite
Normal pitch	^PN	Pica
Alternate ribbon	^PY	Begin/End superscripts (Control characters to begin superscripts)
Standard ribbon	^PY	(Control characters to end superscripts)
Carriage roll up	^PT	Begin/End subscripts (Control characters to begin subscripts)
Carriage roll down	^PV	(Control characters to end subscripts)
Overprint	^PH	Backspace
User patch (1)	^PQ	Begin italics
User patch (2)	^PW	End italics
User patch (3)	^PE	Begin bold type
User patch (4)	^PR	End bold type

I hope this information will be useful for someone else installing custom patches to *WordStar*.

David E. Ritter
Pottstown, PA

A PAT ON THE BACK

Editor:

Charles Annis' "BlitzStar" program (August '85, Page 44) gets my vote as the best ever modification for *WordStar*. His description of "stunning" performance is not overstated. This simple soft-switch makes *all* previous speedup modifications, including my own, look positively anemic! It could well justify the cost of the optional Video RAM Board for many Sanyo users. Thanks, Mr. Annis!

One more step is needed to make this modification fully functional, though: In addition to setting the byte at 280 per Mr. Annis' instructions, you should also set (to FF) the byte at 283. This is the color/highlight switch for memory-mapped mode, and it must be set to enable the inverse-video and/or color functions.

It's tips like this one every few months that keeps my name on your subscription list. Please do not forsake reader-contributed material, as most other computer magazines have done! One such article, in my opinion, is worth a whole issue full of "professionally written" material.

Your complete, cross-referenced annual index (August '85, Page 39) is unusually thorough, highly useful and greatly appreciated. I know this is trite, but it fits: Keep up the good work!

Richard M. Kruse
Wichita, KS

A DIFFERENT CONCEPT

Editor:

I recently purchased my first copy of your magazine after looking for it for a number of months. I was certainly happy that I continued to look for it even after I discovered that it was not widely distributed in my area.

The main purpose of this letter is to thank you for the article by Ray C. Robinson "Putting The Hidden Files Where You Can Find Them" (May '85, Page 47). I am happy to say that I no longer have to put up with the long honking noise that I grew to dread. I also typed in the biorhythm program by S.G. Bucy (May '85, Page 36). I would like to call your attention to an error in the program.

It seems to me that when you are born, your biorhythms should all start out at zero and proceed sinusoidally throughout your life. When I entered the program and answered the year and month to check those of my birth, I was surprised to find that this wasn't the case. I traced the problem to the computation of the days alive section, lines 460 through 520. If you want to have the program zero in on your birthdate, the following changes will cause this to occur:

```
460 TOTAL= -DAY
480 FOR J=MONTH+1 TO M2: TOTAL=
    TOTAL+M(J): NEXT
520 IF YEAR > Y2 THEN FOR I=1 TO
    M2-1: TOTAL=TOTAL+M(I):NEXT
```

If you feel biorhythms begin at conception, enter your conception date rather than birthday. Make the changes and everything will still be in sync.

Thank you for a wonderful magazine.

Robert G. Hughes
Capt., USAF
Belleville, IL

CAUGHT AND CORRECTED

Editor:

I would like to thank Mr. George Algie of Richmond Hts., Ohio for locating and correcting two possible errors with the *Sketch-It Ver. 2* program listing in the January '85 issue.

"There are two things I have found in *Sketch-It* that you might want to change. In Line 1210 the RESUME 1180 should read RESUME 1175. The other item is that in using the pie chart wedges if you want the first point to be horizontal to the right you will not get a radial line. This is because it becomes zero degrees. I have solved the problem with Line 1068 IF REAL1=0 THEN REAL1=1."

Dan Webber
Rolla, MO

FIND AND REPLACE

Editor:

I look forward to the day my SOFT SECTOR comes in the mail. The problem is I read it all the first day and have to wait a whole month for more great reading. It's not that it's not packed full of information, it's just that I ignore everything else until I finish the magazine. I especially like Tim Purves' column.

A little note about "Assuming Too Much" written by Marc Zeeder (July '85, Page 6). When using *WordStar*, and using Find and Replace (^QA), after entering the word to find, then the word to replace it with, and the options N and G, hit RETURN then any key at all and you will quickly be brought to the end of the document with all of the replacements made. The problem is that you are stuck with the key's character at the end of your document. Solution: Hit RETURN twice.

Thom R. Herold
Columbus, OH

Correction

In the review of *Dear Word* (October '85, Page 39), we mistakenly listed the price as $15. It should have read $19.95. If you ordered the program and had your check returned, please reorder. We apologize for the inconvenience.

SOFT SOAPBOX

One of the things we have been wanting to be involved with for a long number of years has finally come to pass. We're very happy about it and I think you will be, too, because it means an expanded capability for you and your computer.

Here at SOFT SECTOR, we figure that we are in the communications business. That is, we believe our primary goal is to communicate things to others; while, at the same time, allow others to share information with one another.

I happen to think we do all this pretty well (and the mail we get from many of you seems to indicate you agree) but there has always been a wish that we could do it better. Now, I think we have a way.

By the time you read this, we will be heavily involved in supplying information to you through a telecommunications capability. We have selected the Delphi network for a number of reasons I will not go into here, but suffice it to say that now you can call up Delphi and join our MS-DOS Special Interest Group (SIG).

There is no initial cost — either for the first hour on Delphi, for joining Delphi, or for joining the MS-DOS SIG — if you're a SOFT SECTOR subscriber. If you are not, then you can subscribe and get the same benefits. You will find more detailed information on pages 52 and 53.

Delphi connect time is inexpensive after your first free hour. Just $6 an hour, even at 1200 Baud. But best of all, it offers a two-way communications medium for you and for us. You'll be able to leave your questions on the forum and get answers; you'll be able to communicate in real time with many of our columnists through the conference; you'll be able to participate in polls (and create your own); have your questions answered in the message form; and, you'll be able to download programs which appear in SOFT SECTOR for a small fee *as well as* have the ability to access a host of free programs from other users of the service.

If you have a question, leave us a "letter to the editor" on Delphi and we'll try to answer. Or, maybe some other member of the SIG will. We'll still print those we think have wide appeal. But your answers should come faster.

"Talk" directly to our contributors and a host of other people involved with SOFT SECTOR! We'll post conference schedules on the SIG, but we'll also print preliminary schedules in the magazine itself.

Truly, I think Delphi opens a whole new world to us. And it will give you yet another way to obtain program listings from our pages quickly and easily — without having to type them in.

Delphi, however, isn't the only new outreach program we'll offer. In cooperation with CompuServe, you can now get listings from SOFT SECTOR through their SOFTEX service. As at Delphi, there is a small cost here, too.

We're excited about the new things we will be doing because we see our association with Delphi and with CompuServe as an extension of SOFT SECTOR. We especially hope you'll take advantage of (at least) the free hour of connect time on Delphi and "meet us" in person.

Everyone here at SOFT SECTOR looks forward to hearing from you and sharing information with you. Come on by and say "hello!"

— Lonnie Falk

PERIPHERAL PRODUCTS DISTRIBUTING

- ***MEMORY "CHEAP CHIP" DEAL!***
  When you order any other item in this ad you can get the 150ns memory chips at a fantastic price. 64k **$12.00** 128k **23.00**
- ***DATA COMMUNICATION SPECIAL!***
  Get online now with an RS-232, the Volksmodem 300 baud modem and the Envoy communications software. **$139.00**
  With 1200 baud Volksmodem **279.00**
- ***WHY SHOULD YOU BUY FROM US?***
  Same day shipping (when order rcvd by 2:00 mst)
  Free shipping via UPS ground
  No additional charge for MC, VISA or COD orders
  Overnight and 2 day air services available

- ***RS-232*** *interface for the MBC-550 at an unbeatable price. Top quality with full warranty.* **$39.00**
- ***BATTERY BACKED-UP REAL TIME CLOCK*** *for the MBC-550. Keep the correct date and time when the power is off. Not affected by disc I/O like the internal clock is. Includes software.* **89.00**
- ***MEMORY*** *upgrades. Prime 150ns 4164 chips.*
  8 chips - 64k **20.00**
  16 chips - 128k **32.00**
- *Volksmodem 300* 59.00
- *Cable for 300* 10.00
- *Volksmodem 1200* 199.00
- *Cable for 1200* 10.00
- *Envoy Datacomm Software* 44.00

PERIPHERAL PRODUCTS DISTRIBUTING
P.O. BOX 11986
TUCSON, ARIZONA 85734

(602) 881-4280
Allow 18 days for personal checks
AZ residents add 7% tax

Four Video RAM Board Routines

Change screen colors and redefine function keys

By Truman Krumholz

Some of you may recall in SOFT SECTOR, August '85, I demonstrated a way for Video RAM board users to change the size of their cursor with a short eight byte program. Now, for those with a color monitor, I am going to show a way to change your screen colors from DOS and a way for everyone to redefine your DOS function keys. You must have Sanyo's MS-DOS, Version 2.11 for the Video RAM Board, the Video RAM Board and a CONFIG.SYS file containing the line DEVICE=ANSI55.SYS. This file must be on your system diskette. My system disk has IO.SYS Version 1.03, but all of these routines should work properly with IO.SYS Version 1.0.

The easiest way to write these short routines is to use DEBUG. Let's begin with an easy one; changing the border color. To do this, we will write a number from zero to seven to the color select port, 03D9. We will also use the keyboard buffer at CS:005D to select the number we will send to the color select port. We will use the AL register to hold this number. Finally, we use Interrupt 20 to return to DOS. The assembly listing would look like this. XXXX is the code segment.

```
XXXX:0100 2E      CS:
                                ;Use the code segment.
XXXX:0101 A05D00  MOV  AL,[005D] ;Get # from keyboard buffer.
XXXX:0104 3C30    CMP  AL,30    ;30H is ASCII zero.
XXXX:0106 720A    JB   0112     ;Jump if it is less than 30.
XXXX:0108 3C38    CMP  AL,38    ;Is it more than 37?
XXXX:010A 7306    JNB  0112     ;Jump if it is.
XXXX:010C 2C30    SUB  AL,30    ;Sub 30 to get real number.
XXXX:010E BAD903  MOV  DX,03D9  ;Port number into DX.
XXXX:0111 EE      OUT  DX,AL    ;# in AL to color select port.
XXXX:0112 CD20    INT  20       ;Return to DOS.
```

First, from the DOS prompt, type DEBUG and press RETURN. Now from the DEBUG prompt, type E 100 and press RETURN.

(Truman Krumholz is a technical engineer at KYTV in Springfield, Missouri. He may be contacted at 3232 W. Glenwood, Springfield, MO 65807; 417-882-8210.)

Type in the following, pressing the space bar after each byte and then press RETURN after the last byte. After you have entered the code, you can check your work against the assembly listing by typing U 100 and pressing RETURN. Disregard any code after the last byte. They will not be saved.

```
2E A0 5D 00 3C 30 72 0A 3C 38 73 06 2C 30 BA D9 03 EE
CD 20
```

After entering the code, type R CX and press RETURN. Now type 14 and press RETURN. This gives DEBUG the length of the program. Type NBORDER.COM and press RETURN. We have now named the file BORDER.COM. Now, type W and press RETURN. This will write the file to disk. Finally, you can type Q and hit RETURN to leave DEBUG. There is now a file on your directory named BORDER.COM. From the DOS prompt, type BORDER 4 and press RETURN. You should have a red border. The colors are 0 = black, 1 = blue, 2 = green, 3 = cyan, 4 = red, 5 = magenta, 6 = yellow and 7 = white.

Now, let's change the foreground color. We will have to do this a different way. The color select port will not change the foreground color when we are in the 80 column mode. This time we will use an escape sequence and Function 9 of Interrupt 21. The assembly section of the routine is similar to the border program and looks like this:

"The easiest way to write these short routines is to use DEBUG."

```
XXXX:0100 2E      CS:              ;Use code segment.
XXXX:0101 A05D00  MOV  AL,[005D]   ;Get number from
                                    buffer.
XXXX:0104 3C30    CMP  AL,30       ;ASCII for zero.
XXXX:0106 720E    JB   0116        ;Back to DOS if it is
                                    less.
XXXX:0108 3C38    CMP  AL,38       ;Is it more than 7?
XXXX:010A 730A    JNB  0116        ;Back to DOS if it is.
XXXX:010C A21B01  MOV  [011B],AL   ;Plug the number
                                    into ESC seq.
XXXX:010F BA1801  MOV  DX,0118     ;Point DX to the
                                    ESC seq.
XXXX:0112 B409    MOV  AH,09       ;Set function for INT
                                    21.
XXXX:0114 CD21    INT  21          ;Do it.
XXXX:0116 CD20    INT  20          :Back to DOS.
XXXX:0118 1B5B33                   ;Start of ESC se-
                                    quence.
XXXX:011B 306D1B                   ;Continued.
XXXX:011E 5B                       ;Continued.
XXXX:011F 324A24                   ;End.
```

After the code at 0118H, we will put in the ASCII escape sequence. The first character is 1B, the escape character. Following is the control character 5B and 33, ASCII for a '3'. Then 30, ASCII for a '0' which may be changed by the number from the keyboard buffer. Following this is a lowercase 'm' (ASCII 6D) which sets the function. The last section, [2J (5B 32 4A) is to clear the screen. First 1B (ESCAPE), then 5B, and 32 which is ASCII for a '2' and J (ASCII 4A) is the function. Finally, a dollar sign (ASCII 24) to indicate the end of the string.

From DOS, again bring up DEBUG. Type E 100 and enter the following just like you did with the border program.

```
2E A0 5D 00 3C 30 72 0E 3C 38 73 0A A2 1B 01 BA 18 01
B4 09 CD 21 CD 20 1B 5B 33 30 6D 1B 5B 32 4A 24
```

After this is entered, type R CX and use 22 for the file length. Type NFG.COM and press RETURN. This names the file FG.COM for foreground. Type W to write the file and Q to leave DEBUG. To use the file type FG then a space and a number from zero to seven. This changes the character color. The colors are 0 = black, 1 = red, 2 = green, 3 = yellow, 4 = blue, 5 = magenta, 6 = cyan and 7 = white.

To change the background color, use the exact same program except change the 27th byte which is 33 to 34 and use NBG.COM as the name. From the DOS prompt, type BG, a space, and a number from one to seven and press RETURN. The colors are the same as the foreground colors. Remember, if you make the foreground and background the same, you cannot read the screen.

Let's use the same technique to do something for those who do not have a color monitor. We will redefine a couple of the function keys. While in DOS, I have found there are several of the function keys I do not use. For this example we will redefine function keys four and five. Function Key 4 will do a DIR/P and Function Key 5 will clear the screen. This time we only need to point DX to our escape sequence and do the interrupts and, of course, put in the sequence. The program assembly code listing is short and looks like this.

```
XXXX:0100 BA0901 MOV  DX,0109    ;Point DX to ASCII
                                   string.
XXXX:0103 B409   MOV  AH,09      ;Set function 9.
XXXX:0105 CD21   INT  21         ;Do it.
XXXX:0107 CD20   INT  20         ;Return to DOS.
XXXX:0109                        ;Start of ESC string.
```

As before, use DEBUG to edit at 100 and put in the following.

```
BA 09 01 B4 09 CD 21 CD 20 1B 5B 30 3B 36 32 3B 22 44
69 72 2F 70 22 3B 31 33 70 1B 5B 30 3B 36 33 3B 22 43
4C 53 22 3B 31 33 70 24
```

This time use 2C to answer the R CX. I used NFUNCTION.COM to name the file FUNCTION.COM, but use whatever you like. After you go back to DOS, from the DOS prompt type FUNCTION or whatever you named the file and press RETURN. Function keys four and five should be redefined.

The scan codes for the function keys are used in this program. They are 59 through 68. The string for Function Key 4 is first, a 1B (escape) then [0;62;"Dir/P";13p. The [is 5B and 0;62 is the code for Function Key 4. "Dir/P" is what we want it to do. The 13 is a carriage return and the lowercase 'p' indicates the function to redefine keys. For Function Key 5 the string is [0;63;"CLS";13p. The 0;63 is the scan code for Function Key 5. The last byte of the program, the 24, is the dollar sign to indicate the end of the strings.

Using this technique, any of the function keys or any other key that generates code can be redefined. To redefine the letter keys use the ASCII codes and a sequence like 1B (escape) and [66;80p which redefines B (ASCII 66) to be 'P' (ASCII 80). Don't forget to put a dollar sign after the last string.

All of these little programs, except the first one, use the DOS and the ANSI55.SYS file. I think the ability to do these kinds of things with such short routines shows the versatility of the 8088 processor and MS-DOS.

Redesigning The Wheel With Sanyo BASIC Graphics

By Fred Blechman
Soft Sector Contributing Editor

Last month we learned how to set points and how to create boxes using the LINE statement. This month we continue our lesson on Sanyo BASIC graphics by learning how to make circles, arcs, segments and ellipses.

Circles, Arcs, Segments And Ellipses

Although a circle could be drawn on the screen with PSET and trigonometry, it's faster and easier to use the CIRCLE statement, whose syntax is as follows:

```
CIRCLE(X,Y),R,S,E,P,C
```

The X and Y specify the center of the circle in world coordinates (zero to 32,767 for each). Normally, you'll use the screen limits of zero to 639 for X and zero to 199 for Y. The R is for radius, measured in dots along the horizontal direction.

Arcs

The values for S, E, P and C are optional. The starting point (right side, horizontal axis) of an arc is S, with E the ending point, and the movement is clockwise. A full circle has a value of one, so a quarter circle would be be .25. To draw an arc of one-eighth a circle, starting at the lowest point on the screen, use an S value of .25 and an E value of .375.

Segments

If a negative value is specified for either, the absolute value is used and a line is drawn from that point on the arc to the center of the circle. If both S and E are negative values, a segment is drawn.

Ellipses

The value of P determines the proportion or ratio of the circle so ellipses can be drawn. A value for P less than .508 results in a horizontally elongated ellipse; a P greater than .508 results in a vertically elongated ellipse. The horizontal limit is always within the range of R.

Listing 1 draws a circle made up of arcs and segments.

Springs And Doughnuts

While you're dealing with circles you might want to draw a series of circles in a preestablished pattern. Listing 2 draws different colored circles along a sine wave path, while Listing 3 follows a circular path.

(Fred Blechman, an acknowledged authority on home computers, has written several articles and books related to microcomputers. He is self-taught in electronics and computer BASIC programming and specializes in writing for beginners. Fred may be contacted at 7217 Bernadine Ave., Canoga Park, CA 91307; 818-346-7024.) *Copyright© 1985 by Fred Blechman.*

In both of these listings, the MOD 7+1 following the variable X or A on the CIRCLE program line creates circles of different colors. Use a constant for the color you prefer if you want a one-color figure.

COLORing With PAINT

In addition to COLORing dots, Sanyo BASIC allows you to PAINT sections of the screen between existing borders. You did a little of this with the LINE statement when you filled a block. The PAINT statement, however, lets you fill in irregular shapes up to a specified border color.

The syntax is as follows:

```
PAINT(X,Y),C,B
```

The X and Y coordinates can be anywhere within the world coordinate system, but you'll usually be using from zero to 639 for X and zero to 199 for Y. These coordinates must fall within the area you want PAINTed, filled with COLOR.

The C parameter is for the desired area color, and the B is for the border color to stop the PAINTing.

A simple example to illustrate the PAINT command is shown in Listing 4 where three triangles are drawn with LINE statements and each is then PAINTed a different color.

Notice that Line 10 LOCATEs the cursor away from the triangles. If the cursor happens to be flashing along one of the LINEs, this has the effect of changing the line color, and PAINT can "escape" through this opening!

Also, don't omit the border color for stopping the PAINT in program lines 300 to 320.

The PAINT coordinates can be anywhere within the bordered area you want filled with the specified area color. The area color moves upward to the specified border color until that portion is filled, then moves downward to fill the rest of the area.

COLOR Wheel

Determining the coordinates for PAINT can be done by trial and error, but this can be tedious if a lot of areas are involved. Listing 5 uses a more sophisticated approach by using a formula to calculate the PAINT coordinates. This can be done because the basic figure being filled in is regular in shape — an enlarged version of the arc/segment program of Listing 1.

Lines 20 to 40 draw a large circle with 20 segments — a kind of big, spoked wheel. Lines 120 and 130 calculate the coordinates of a point within each segment. Actually, these points fall on a circle calculated by the SINe and COSine functions, with the Angle P selected to fall between the spokes

of the wheel. The multipliers of 50 for X and 25 for Y in lines 120 and 130 determine the size and shape of the plotting circular path.

Lines 140 and 150 change the color of the PAINT, avoiding zero (black). The result is a brilliantly COLORed wheel.

Joystick Commands

The Sanyo MBC-550 includes a joystick port — a 16-pin DIP (dual inline pin) socket all set for you to plug in an Apple-compatible joystick. These are analog joysticks, quite different than the typical Atari-type digital joysticks.

While a joystick is normally associated with playing computer games, it can also be useful for drawing shapes on the screen or selecting from a screen menu by the appropriate use of the two commands, STICK and STRIG. (These are not shown in Sanyo BASIC's "Reserved Words" list, but are implemented nevertheless.)

STICK "reads" the vertical and horizontal position of the joystick by converting voltage values related to the stick position. STRIG monitors the joystick firing button(s).

For my testing, I used the MAGSTIK available from Tech Designs, Inc. This joystick is magnetically self-centering when released, and has separate X and Y linear "trimmers" for close calibration and "centering" of its two built-in linear 150K ohm potentiometers. It has two firing buttons and plugs directly into the Sanyo joystick socket without any adapters or rewiring. A snap-in "magnetic module," shielded to prevent erasure of diskettes, is inserted in the bottom of the unit. It can be removed if you prefer to defeat the self-centering feature.

Testing The Joystick Commands

Joystick and firing button operation can be demonstrated with Listing 6.

Joysticks usually have the same internal resistance values for both the X and Y axis. It is these resistance values that change as the joystick is moved. The MAGSTIK returns values of zero to approximately 200 in each direction on the Sanyo. Since these numbers can be used as position coordinates, we either have to multiply them by the proper factors to use them on our rectangular screen, or let the computer do this for us with the WINDOW statement. This program uses the latter approach, setting the WINDOW to 200 in each direction in program Line 10. This means we can use the actual joystick output and the screen will be proportioned properly.

Line 20 clears the screen, and STRIG (Sense TRIGger) "ON" enables the firing buttons, which we'll get to shortly. Line 20 also sets the value of variable C, which will be used for COLOR, to one.

Line 30 senses the X and Y coordinates of the joystick position with STICK(1) and STICK(2) respectively, and assigns these values to variables X and Y. Line 40 then uses the PSET statement to plot a point on the screen at that location in the current C color.

Line 50 allows you to change the color by changing the value of C. When firing button number one is pressed, STRIG(1) changes from its normal "off" value of zero to a value of minus one. The rest of this program line increments the value of C, being sure it never goes to zero or exceeds seven. Line 60 then goes back to Line 30 to sense new STICK values.

STRIG(2) returns the inverse of STRIG(1) for firing button number one. Firing button number two uses STRIG(3) and STRIG(4) to read its "on-off" status.

So What?

While these joystick programs have no real practical value, they do allow you to get acquainted with the joystick commands, to make crude screen drawings and to get the "feel" of the joystick. Beyond this point, I'll leave it up to your creativity and imagination to apply the joystick to your own applications.

Listing 1: Arcs and Segments

```
1Ø CLS
2Ø FOR X= Ø TO 1 STEP .Ø5
3Ø CIRCLE(32Ø,1ØØ),75,X,-(X+.Ø5),,7
4Ø NEXT
5Ø GOTO 5Ø
```

Listing 2: Circles on a Sine Wave

```
1Ø CLS
2Ø FOR X=Ø TO 36Ø STEP 4
```


— KRAFT — SANYO — OKIDATA — SANYO — MINI VAC —

FYI

Computer Services

Computer Supplies • Software • Forms
Stationary • Systems • Hardware
Peripherials • Compatiables

Send $1.00 For Catalog
15503 Feldspar Dr.
Carbon Canyon, Ca. 91709

714-597-4488

— SANYO — WRITING CONSULTANTS — SANYO — WARP SPEED — SANYO — GENERIC —
— SANYO — A-OK — SANYO — TLS — SANYO — OLYMPIC — SANYO — INFOCOM —

— BORLAND — SANYO — MICHTRON — SANYO — U.S. DIGITAL —

CoForth 83

MUSIC

MIDI INTERFACE CARD/COMPOSITION SOFTWARE FOR SANYO 550 SERIES
Enables the Sanyo to communicate with up to 16 channels of MIDI equipped synthesizers (Musical Instrument Digital Interface). Includes full CoForth 83 language customized for MIDI with sequencer applications and text-oriented composition packages.

Disk, manual, board and shipping.....$195.00

EXTENDED CONCURRENT FORTH-83 FOR THE SANYO 550 SERIES
FORTH-83 Standard programming language, up to 30 times faster than Basic. Ideal for graphics, games, robotics. Built-in extensions to support Sanyo's unique features:
*IBM-PC/Sanyo Video Board compatible
*Hi-res graphics
*MS-DOS function support
*Full featured editor
*Multitasking and timing
*Screen print
Disk, manual and shipping.....$40.00

MIDI

≋BLUEWATER

2537 Colfax Avenue South
Minneapolis, Minnesota 55405
(612)377-7369

```
3Ø LET Y=5Ø*SIN(X*3.1416/18Ø)
4Ø CIRCLE(X+15Ø,Y+1ØØ),5Ø,,,,X MOD 7+1
5Ø NEXT
6Ø GOTO 6Ø
```

Listing 3: Circles on a Circle

```
1Ø CLS
2Ø FOR A=Ø TO 36Ø STEP 4
3Ø X=1ØØ*COS(A*3.14159/18Ø)
4Ø Y=5Ø*SIN(A*3.14159/18Ø)
5Ø CIRCLE(X+32Ø,Y+1ØØ),5Ø,,,,A MOD 7+1
6Ø NEXT
7Ø GOTO 7Ø
```

Listing 4: PAINTing Triangles

```
1Ø CLS:COLOR 7:LOCATE 23,75
2Ø LINE(Ø,Ø)-(5Ø,1ØØ)
3Ø LINE-(15Ø,1Ø)
4Ø LINE-(Ø,Ø)
1ØØ LINE(1ØØ,1ØØ)-(28Ø,195)
12Ø LINE-(1ØØ,1ØØ)
2ØØ LINE-(55Ø,2Ø)
21Ø LINE-(6ØØ,15Ø)
22Ø LINE-(1ØØ,1ØØ)
3ØØ PAINT(5Ø,5Ø),1,7
31Ø PAINT(1ØØ,11Ø),2,7
32Ø PAINT(12Ø,1ØØ),4,7
33Ø GOTO 33Ø
```

Listing 5: COLOR Wheel Program

```
1Ø CLS
2Ø FOR X= Ø TO 1 STEP .Ø5
3Ø CIRCLE(32Ø,1ØØ),19Ø,X,-(X+.Ø5),,7
4Ø NEXT
95 C=1
1ØØ FOR P=9 TO 351 STEP 18
11Ø X=5Ø*COS(P*3.14159/18Ø)
12Ø Y=25*SIN(P*3.14159/18Ø)
13Ø PAINT(X+32Ø,Y+1ØØ),C,7
14Ø C=C+1:IF C=8 THEN C=1
15Ø NEXT
16Ø GOTO 16Ø
```

Listing 6: MAGSTIK Exercise

```
1Ø WINDOW(Ø,Ø)-(2ØØ,2ØØ)
2Ø CLS:STRIG ON:C=1
3Ø X=STICK(1):Y=STICK(2)
4Ø PSET(X,Y),C
5Ø IF STRIG (1)=-1 THEN C=C+1:IF
   C=8 THEN C=1
6Ø GOTO 3Ø
```


Great Software For Your Sanyo At Low, Low Prices

RAM Disk. MOR: An extremely flexible and versatile RAM disk, unlike any others you may have seen. May be removed by a single command, or reconfigured to a different disk size without having to reboot and recopy files. If the computer quits in the middle of a session, MOR lets you recover the RAM disk and your files may still be there. Also tells DOS to forever reload COMMAND.COM from drive A, so you need not worry about using the RAM as default. Automated installation on all versions of DOS 1.25 and 2.11. Runs on 128K systems, too. Only **$24.95**

Spooler. SPUL: A multi-function spooling utility that provides 1 to 64K printer buffer. Unlike other spoolers, SPUL lets you pause and resume printing, or cancel everything in the buffer, all from the keyboard. DOS Control-P echoes are buffered. As if that's not enough, we have added a SCREEN DUMP capability that dumps any number of lines on the screen to the buffer. Now, tell us which program can dump the entire screen and return control to you in just one or two seconds! Requires any version of DOS 1.25/2.11 and any RAM size. Only **$24.95**

Bibliography. An electronic marvel for modern scholars! Definition files and command files all properly set up for your DataStar and MailMerge to produce MLA style bibliography. Can be converted to any other styles. Saves you hours of frustration in creating your own. Ready for data entry. Can sort by any field. Number of bibliographic items limited only by your disk capacity. Many tricks included; serves as a tutorial in itself. Used by the author in his Ph.D. dissertation. Only **$15.95**

Mailing List. Definition files and command files all properly set up for your DataStar and MailMerge to produce a variety of mailing lists to suit different needs. Number of records limited only by your disk capacity. Can sort by any field. Includes many tricks and tips and a command file to print envelopes. Can print 1 or 3-across labels. Originally developed for a magazine subscription agency to keep track of more than 100,000 subscribers. Why waste time creating your own when you can use our fully tested and debugged program? Only **$12.95**

Proportional Spacing. A program that automatically installs your WordStar to print in proportional spacing. This means such letters as "i" and "l" will occupy much less space than letters like "m" and "w," and the space in between words will be evenly spread out, resulting in a dramatically improved printout that looks almost *typeset*. You still get all the WordStar printing features, including right justification, boldface, underscore, superscript, etc. You get best results when you use a PS printwheel, but fine even if you use the ordinary non-PS 10 or 12-pitch printwheels. No crowded characters, even on one-word short lines. Comes with a disk and a manual plus a variety of printing tricks. Requires Juki, Brother, Silver-Reed, or any other letter-quality printers. Developed by the author to print his Ph.D. dissertation. **Extra Bonus for Juki 6100 printer:** Our Proportional Spacing program will also automatically install your WordStar to print French cedilla (ç) and German umlaut (ü), two foreign characters not on your keyboard. Now your Juki can print all the diacritical marks needed for French and German. Information on how to print the other four special characters (¢ ¬ § £) is also included in our Manual. Fully tested on Juki 6100. All for only **$19.95**

Juki 6100 Printer Accessories

Genuine Juki 6100 100-character Printwheels.		Only **$22.95** each
Roman PS	ABCDEFGHI ~ç¬§£¨ç `abcde^:;<=>?
Standard PS	ABCDEFGHI[Ω]Δ °abcdef ½¶¼²¢µ§£³¥!"
Prestige Elite 12	ABCDEFGHI[\]^ `abcdef{|}~ç¬§£
Joan Italic 10/12	*ABCDEFGH[Ω]Δ_°abcde½¶¼²¢µ§£³¥*
Mini Majestic 12/15	ABCDEFGHIJKLMNOPQRSTUVWXYZ½¶¼²¢µ§£³¥!"#$%

CHAUCER SOFTWARE
1004 Quail Ridge Drive
P. O. BOX 732
Plainsboro, NJ 08536
Telephone (609) 275-0789

Check, Visa, MasterCard accepted
All U.S. orders shipped FREE, via First Class Priority Mail, in 24 hours. Foreign customers, please add U.S. $10.00 per order (any item) for Air Mail. NJ residents only, please add 6% sales tax.

CALCULATOR

Keep a calculator in as handy a reach as your Sanyo

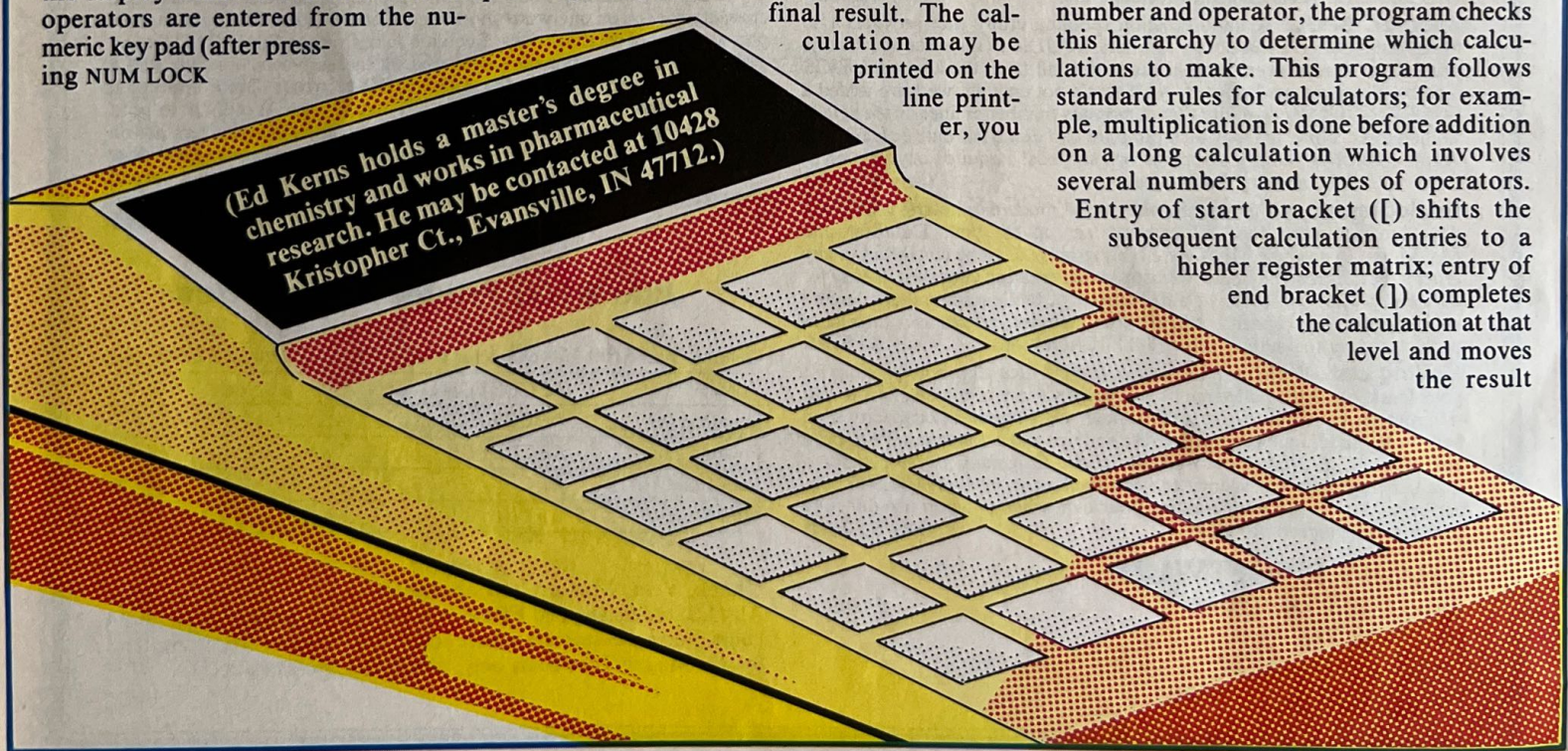
By Edward Kerns

From time to time we all need a calculator to figure a bill or a problem from work. As we go hunting for our hand-held calculator in the desk drawer, our powerful Sanyo 555 is sitting on the desk top within easy reach. *Calculator Emulator* will put that Sanyo power to work on your calculation within 10 seconds and save the aggravation of hunting for that misplaced calculator. If you know how to operate a hand-held calculator then you already know how to operate this one.

In operation, the program displays a graphic representation of a calculator. You can also see the entries and results in the display window. Numbers and simple operators are entered from the numeric key pad (after pressing NUM LOCK at the beginning). Special operators, like sine and square root, are entered from the keyboard as a single capital letter. Calculations are entered according to standard algebraic syntax, except that special functions (other than +,–,*,/,M,R and %) are followed by brackets enclosing the numbers on which operation of the special operator is desired.

Calculator Emulator has several special features. There are 10 memories (zero to nine) and 10 levels of parentheses (entered as brackets). Scientific notation numbers (e.g., 1.234E 7 or 1.23456789D 7) may be entered. When a calculation concludes with an end bracket, then the entry of an equal sign (=) is not required to obtain the final result. The calculation may be printed on the line printer, you may kill (erase) the last numeric or operator entry and the sign of the entry or the result may be changed.

Here is, briefly, how the program works. First, a graphical representation of a calculator is drawn on the monitor. The program reads your keyboard entry. Numbers are constantly updated on the calculator display until an operator is entered. Then the number and operator are placed in a register matrix. The calculator needs to operate according to a hierarchy of what operations to perform first, so we assign a hierarchy of zero to numbers (e.g., 1 to + and –, 2 to * and /) and place these hierarchies in a separate register. With each succeeding entry of number and operator, the program checks this hierarchy to determine which calculations to make. This program follows standard rules for calculators; for example, multiplication is done before addition on a long calculation which involves several numbers and types of operators. Entry of start bracket ([) shifts the subsequent calculation entries to a higher register matrix; entry of end bracket (]) completes the calculation at that level and moves the result



(Ed Kerns holds a master's degree in chemistry and works in pharmaceutical research. He may be contacted at 10428 Kristopher Ct., Evansville, IN 47712.)

EMULATOR

down to the next lower register matrix level.

The program is written with the intention of following the ideals of structured programming in BASIC as described by Arthur Luehrmann in *Creative Computing*, May-June, 1984. The structured approach is excellent for anyone endeavoring to learn and tame the language that will make a microcomputer perform wonderful feats.

"Numbers and simple operators are entered from the numeric key pad."

Calculator Functions and Syntax

Graphic Representation	Function	Entry Syntax	Notes
Sin	Sine	S [number]	enter degrees
Cos	Cosine	C [number]	" "
Tan	Tangent	T [number]	" "
1/N	Inverse	N [number]	
e^X	e to power X	X [number]	
%	N1 what % of N2	N1 % N2	
sQr	Square Root	Q [number]	
pWr	N1 to power N2	N1 W [N2]	
Ln	Natural Log	L [number]	
Prn	Lineprint Toggle	P	P again to stop
M	Memory Store	M number	number = 0 to 9
R	Memory Recall	R number	"
K	Kill Last Entry	K	number/operator
B	Break, Exit	BREAK Key	exit or clear all
+ <-> -	Change Sign	RETURN Key	
[,]	Parentheses	[,]	10 levels

The listing: CAL.BAS

```
1Ø 'CALCULATOR PROGRAM, 6-14-85, by ED KERNS
2Ø    GOSUB 4Ø: 'SETUP
3Ø    GOSUB 9Ø: 'OPERATIONS
4Ø 'SUB SETUP
5Ø   DEFSTR A,C,D,G,M,P,S-W,Y:DEFINT B,E,F,H-L,N,X,Z:PI="3.141592654"
6Ø   GOSUB 19Ø: 'DRAW LINES
7Ø   GOSUB 4ØØ: 'LABEL KEYS
8Ø RETURN
9Ø 'SUB OPERATIONS
1ØØ   F=1
11Ø   GOSUB 9ØØ: 'INPUT
12Ø   GOTO  95Ø: 'CHECK FOR SPECIAL OPERATORS
13Ø   GOSUB 163Ø: 'DISPLAY OPERATOR INPUT
14Ø   GOSUB 169Ø: 'DISPLAY NUMERIC INPUT
15Ø   GOSUB 176Ø: 'PERFORM OPERATIONS
16Ø   GOSUB 189Ø: 'CHECK FOR ] INPUT
17Ø   GOTO  11Ø
18Ø RETURN
19Ø 'SUB DRAW LINES
2ØØ   CLS
```

```
 21Ø   LINE (83,5)-(447,199),,B
 22Ø   LINE (91,29)-(439,55),,B
 23Ø   I=1
 24Ø   READ J
 25Ø   GOSUB 32Ø: 'DRAW KEYS
 26Ø   IF I=7 THEN 29Ø
 27Ø   I=I+1
 28Ø   GOTO 24Ø
 29Ø   LINE (387,14Ø)-(427,182),,B
 3ØØ   DATA 99,147,195,243,291,339,387
 31Ø RETURN
 32Ø 'SUB DRAW KEYS
 33Ø   K=Ø:B=68
 34Ø   LINE (J,B+K*24)-(J+4Ø,B+K*24+18),,B
 35Ø   IF I=7 AND K=2 THEN 39Ø
 36Ø   IF K=4 THEN 39Ø
 37Ø   K=K+1
 38Ø   GOTO 34Ø
 39Ø RETURN
 4ØØ 'SUB LABEL KEYS
 41Ø   RESTORE:READ J
 42Ø   READ J
 43Ø   A="[]MRK=741Ø/852 *963.B-++-"
 44Ø   E=1
 45Ø   I=1
 46Ø   READ J
 47Ø   GOSUB 56Ø: 'DRAW VERTICAL NUMBERS
 48Ø   IF I=5 THEN 51Ø
 49Ø   I=I+1
 5ØØ   GOTO 46Ø
 51Ø   SYMBOL(296,166),"ØØ",2,2
 52Ø   GOSUB 65Ø: 'LABEL SPECIAL KEYS
 53Ø   LOCATE 24,18,Ø:PRINT"KEYBOARD          NUMERIC PAD":LOCATE 1,1,Ø
 54Ø   LOCATE 21,51:PRINT CHR$(18)
 55Ø RETURN
 56Ø 'SUB DRAW VERTICAL NUMBERS
 57Ø   K=Ø:B=71
 58Ø   W=MID$(A,E,1)
 59Ø   SYMBOL(J+9,B+K*24),W,3,1.5
 6ØØ   E=E+1
 61Ø   IF K=4 THEN 64Ø
 62Ø   K=K+1
 63Ø   GOTO 58Ø
 64Ø RETURN
 65Ø 'SUB LABEL SPECIAL KEYS
 66Ø   GOSUB 72Ø: 'LABEL VERTICAL COLUMN
 67Ø   X=X+1:Z=Ø
 68Ø   IF X=2 THEN 71Ø
 69Ø   GOTO 66Ø
 7ØØ   DATA Sin,Cos,Tan,1/N,e^X, % ,sQr,pWr,Ln,Prn
 71Ø RETURN
 72Ø 'SUB LABEL VERTICAL COLUMN
 73Ø   READ SS
 74Ø   LOCATE Z*3+1Ø,X*7+14
 75Ø   PRINT SS
 76Ø   Z=Z+1
 77Ø   IF Z=5 THEN 79Ø
 78Ø   GOTO 73Ø
 79Ø RETURN
```

```
8ØØ 'SUB DISPLAY WINDOW AND LINE-PRINT
81Ø   IF R=2.5 THEN GOTO 83Ø
82Ø   IF LEN(Y)>16 THEN R=1 ELSE R=1.5
83Ø   LINE(92,3Ø)-(438,54),Ø,BF
84Ø   SYMBOL(1Ø4,32),Y,R,3:R=1
85Ø   IF O=1 AND O1=1 THEN LPRINT Y
86Ø   IF O=2 AND O1=1 THEN LPRINT ,Y;" ";
87Ø  'LINE (Ø,Ø)-(4Ø,17Ø),Ø,BF:'remove "'" on line 87Ø & 88Ø to watch registers
88Ø  'LOCATE 1,1:FOR X=Ø TO 9:PRINT S(Z,X);"/";N(Z,X):NEXT:PRINT "N=";N;" Z=";Z
89Ø RETURN
9ØØ 'SUB INPUT
91Ø   C=INKEY$
92Ø   IF C="" THEN 91Ø
93Ø   IF INSTR("SCTNX%QWLP[]MRK=123456789ØØ=/*-+.DE",C)=Ø AND C<>CHR$(13) THEN 9
1Ø
94Ø RETURN
95Ø 'SUB CHECK FOR SPECIAL OPERATORS
96Ø   IF VAL(C)>Ø THEN GOTO 13Ø
97Ø   IF INSTR("SCTNXQWLP",C)>Ø THEN GOSUB 143Ø
98Ø   IF C="P" THEN O1=ABS(O1-1): 'SET PRINT TOGGLE
99Ø   ON INSTR("[MR",C) GOSUB 1Ø3Ø,119Ø,128Ø
1ØØØ   IF C="K" THEN GOTO 134Ø
1Ø1Ø   IF C=CHR$(13) THEN GOSUB 111Ø: 'CHANGE SIGN
1Ø2Ø   IF INSTR("[MSCTNXQWLZP",C)>Ø THEN 11Ø ELSE 13Ø
1Ø3Ø 'SUB LOGIC FOR [ INPUT
1Ø4Ø   Y="[":O=1:GOSUB 8ØØ
1Ø5Ø   IF Z=Ø AND S(Ø,1)="=" AND VAL(S(Ø,Ø))<>Ø THEN N=Ø
1Ø6Ø   IF Z=Ø AND S(Ø,1)="]" AND VAL(S(Ø,Ø))<>Ø THEN N=Ø
```


SANYO FOR LE$S

*Convert IBM BASICA to Sanyo BASIC	$29.95
*Unprotect IBM/Sanyo BASIC	$24.95
*Supplement For Basic — 70 Pages	$5.00
*Key Plus Program	$14.95
Tool Box — Includes all the above 4 products	$53.95
Sanyo Tutorial — Beginner to Expert	$37.95
Sanyo Video Board	CALL
The Ultimate —7 in 1 integrated software. Limited Quantities	$69.95
The Merchandiser™— Point Of Sale For Sanyo	$425.00
Irish Diskettes DSDD — 10 per box	$14.00/Box
Scotch/3M Diskettes — DSDD	$1.70 each
SSDD	$1.10 each
Run Lotus 1-2-3 Without The Video Board	$39.95
Dustcovers To Fit Your Sanyo - Many Styles	CALL
128K Memory Upgrade	CALL
COPYLINK™ — Limited Time Only	$72.95
CPeMULATOR™ — Limited Time Only	$72.95
Sanyo RS232	CALL

CALL FOR MANY MORE SPECIALS

**If you see an identical item advertised in this issue of Soft Sector for less, CALL US and we'll MATCH OR BEAT the price!

★ Add $2.00 for postage and handling. ★
★ COD orders extra ★
★ Dealers inquiries invited ★
★ Check, Visa, Mastercard and Money Order ★

BLOCK MARKETING, INC.
6009 Wayzata Blvd., suite 102B
Minneapolis, MN 55416
(612) 546-3776
(Block Marketing is a recognized Sanyo Dealer.)
*MN residents must add 6% Sales Tax.

FREE CATALOG

NEW
DISK DRIVES
STARTING AT
$129.00
WITH CASE & POWER SUPPLY
$199.95

$129
Your Choice
TEAC 55B 55F 48TPI-96TPI
Five Inch Single Sided Drives
Speed 6 ms tk to tk
Capacity 360/720k
Tracks 40/80
Warranty now 1 YEAR

New Low Price!
40 or 80 Tracks
1-2 Hght Teac/Panasonic
CALL FOR SALE PRICES

We carry only the finest quality disk drives - no seconds - no surplus
SATISFACTION GUARANTEED!!
ALL DRIVES FULLY TESTED&WARRANTEED

Printers

$239.95 Printer Only

STAR MICRONICS
Gemini 10 x 120 cps SG10 $239.95
Gemini 15 x 120 cps, 15 cps SG15 CALL
Powertype 18 cps ltr qual 329

Panasonic
Panasonic 1090 CALL
Panasonic 1091 CALL

MONITORS
GORILLA 79.95

Amdek
★ Model 300
★ Color Composite (300 x 260)
$249.95

MODEMS
MODEMS - Cable included
Signalman Mark I 300 BAUD 69.95
Signalman Mark II 300/1200 BAUD 129.95
250.00

Single ps&case $44.95 Dual 1/2 ht ps&case ..$54.95

DISKETTES with free library case $17.95
Unadvertised Specials ..... $Call
Drives cleaned, aligned & tested $29.95

TECHNICAL STAFF ON DUTY PLEASE CALL FOR ASSISTANCE

CALL US TODAY!! ORDER TOLL FREE
(617) 278-6555 or
(617) 234-7047
1-800-635-0300

DEALER & DISTRIBUTOR INQUIRIES INVITED
(617) 234-7047

TRUE DATA PRODUCTS
9 South Main St.
Uxbridge, MA 01569
(617) 234-7047
HOURS MON SAT 9-6 (EST)

We welcome
• Visa / Master Charge
• Checks (allow 2 weeks for clearing)
• COD Add $2.00

```
107Ø   L(Z)=N
108Ø   Z=Z+1
109Ø   N=Ø
11ØØ RETURN
111Ø 'SUB CHANGE SIGN
112Ø   IF D="" THEN S(Z,N-2)=STR$(-1*VAL(S(Z,N-2))) ELSE 115Ø
113Ø   Y=S(Z,N-2):O=2:GOSUB  8ØØ
114Ø   GOTO  117Ø
115Ø   D=STR$(-1*VAL(D))
116Ø   Y=D:GOSUB 8ØØ
117Ø   C="Z"
118Ø RETURN
119Ø 'SUB LOGIC FOR M INPUT (MEMORY STORE)
12ØØ   Y="MEMORY":O=2:GOSUB 8ØØ
121Ø   V=INKEY$:IF V="" THEN 121Ø
122Ø   IF D<>"" THEN 124Ø
123Ø   IF VAL(S(Z,N-1))>Ø THEN M(VAL(V$))=S(Z,N-1) ELSE M(VAL(V$))=S(Z,N-2):GOTO
 125Ø
124Ø   M(VAL(V))=D
125Ø   SYMBOL(3ØØ,33),V,1.5,3:IF O1=1 THEN LPRINT V;"=";
126Ø   Y=M(VAL(V)):O=1:GOSUB 8ØØ
127Ø RETURN
128Ø 'SUB LOGIC FOR R INPUT (MEMORY RECALL)
129Ø   Y="RECALL":O=2:GOSUB 8ØØ
13ØØ   V=INKEY$:IF V="" THEN 13ØØ
131Ø   C=M$(VAL(V))
132Ø   SYMBOL(3ØØ,33),V,1.5,3:IF O1=1 THEN LPRINT V;"=";
133Ø RETURN
134Ø 'SUB LOGIC FOR K INPUT
135Ø   IF N=Ø THEN 136Ø:IF S(Z,N-1)="=" OR S(Z,N-1)="]" THEN 142Ø
136Ø   IF D<>"" THEN 141Ø:'DETECTS NUMERIC ENTRY IN PROGRESS
137Ø   C="Z":Y="KILL OPERATOR":O=2:GOSUB 8ØØ:'IF NOT NUMERIC, ASSUME OPERATOR
138Ø   IF N=Ø AND Z>Ø THEN Z=Z-1 ELSE 14ØØ:'DETECTS "[" OPERATOR ENTRY TO KILL
139Ø   N=L(Z):GOTO 142Ø
14ØØ   N=N-1:F1=1:GOTO 142Ø
141Ø   D="":Y="KILL ENTRY":O=2:GOSUB 8ØØ
142Ø GOTO 11Ø
143Ø 'SUB SPECIAL OPERATORS
144Ø   B1=(INSTR("SCTNXQWLP",C)-1)*3+1
145Ø   Y=MID$("SinCosTan1/Ne^XSqrx^yLn Prn",B1,3)
146Ø   O=1:GOSUB 8ØØ
147Ø   IF C="W" THEN GOSUB 155Ø: 'WHEN C=W
148Ø   IF C="P" THEN 154Ø
149Ø   IF Z=Ø AND S(Ø,1)="=" AND C<>"W" THEN N=Ø
15ØØ   IF Z=Ø AND S(Ø,1)="]" AND C<>"W" THEN N=Ø
151Ø   S(Z,N)=C
152Ø   N(Z,N)=4
153Ø   N=N+1
154Ø RETURN
155Ø 'SUB WHEN C=W (POWER FUNCTION)
156Ø   IF N=2 AND S(Z,1)="=" THEN N=1 ELSE 158Ø
157Ø   GOTO 162Ø
158Ø   S(Z,N)=D
159Ø   N(Z,N)=Ø
16ØØ   N=N+1
161Ø   D=""
162Ø RETURN
163Ø 'SUB DISPLAY OPERATOR INPUT
164Ø   IF VAL(C)>Ø OR INSTR("Ø.ED",C)>Ø THEN 168Ø
```

```
165Ø   IF N=2 THEN GOSUB 223Ø: 'LOGIC FOR = IN STACK IF NEXT INPUT OPERATOR
166Ø   F=1
167Ø   R=2.5:Y=C:O=Ø:GOSUB 8ØØ
168Ø RETURN
169Ø 'SUB DISPLAY NUMERIC INPUT
17ØØ   IF VAL(C)=Ø AND INSTR("Ø.ED",C)=Ø THEN 175Ø
171Ø   IF N=2 THEN GOSUB 228Ø:'LOGIC IF = IN STACK IF NEXT INPUT NUMERIC
172Ø   D=D+C
173Ø   Y=D:O=Ø:GOSUB 8ØØ
174Ø   F=F+1
175Ø RETURN
176Ø 'SUB PERFORM OPERATIONS
177Ø   IF C="=" AND D="" OR F1=1 THEN 182Ø
178Ø   IF VAL(C)>Ø OR D="" OR INSTR("Ø.ED",C)>Ø THEN 188Ø
179Ø   S(Z,N)=D:Y=D:O=1:GOSUB 85Ø:'INSERT NUMBER IN REGISTER & DISPLAY
18ØØ   N(Z,N)=Ø: 'INSERT NUMERICAL HIERARCHY IN REGISTER
181Ø   N=N+1
182Ø   GOSUB 232Ø: 'DECIDE OPERATOR HIERARCHY
183Ø   S(Z,N)=C:Y=C:O=1:GOSUB 85Ø:'INSERT OPERATOR IN REGISTER & DISPLAY
184Ø   N(Z,N)=H: 'INSERT OPERATOR HIERARCHY IN REGISTER
185Ø   D=""
186Ø   N=N+1:IF F1=1 THEN F1=Ø
187Ø   GOSUB 238Ø: 'PERFORM FUNCTION IF READY
188Ø RETURN
189Ø 'SUB LOGIC FOR ] INPUT
19ØØ   IF C<>"]" THEN 2Ø2Ø
191Ø   L(Z)=N1
192Ø   Z=Z-1
193Ø   N=L(Z)
194Ø   S(Z,N)=S(Z+1,Ø)
195Ø   FOR X=Ø TO N1+1:S(Z+1,X)="":N(Z+1,X)=Ø:NEXT X
196Ø   N=N+1
197Ø   IF N<2 THEN 199Ø
198Ø   IF INSTR("SCTNXQWL",S(Z,N-2))>Ø THEN GOSUB 2Ø3Ø
199Ø   IF N<>Ø THEN S(Z,N)="]":N=N+1
2ØØØ   GOSUB 238Ø
2Ø1Ø   IF S(Z,1)="]" THEN GOSUB 218Ø: 'DISPLAY RESULT
2Ø2Ø RETURN
2Ø3Ø 'SUB PROCESS SPECIAL OPERATORS
2Ø4Ø   Z1=INSTR("SCTNXQLW",S(Z,N-2))
2Ø5Ø   IF Z1=Ø THEN 217Ø
2Ø6Ø   ON Z1 GOTO 2Ø7Ø,2Ø8Ø,2Ø9Ø,21ØØ,211Ø,212Ø,213Ø,214Ø
2Ø7Ø   S(Z,N-2)=STR$(SIN(VAL(PI)/18Ø*VAL(S(Z,N-1)))):GOTO 215Ø
2Ø8Ø   S(Z,N-2)=STR$(COS(VAL(PI)/18Ø*VAL(S(Z,N-1)))):GOTO 215Ø
2Ø9Ø   S(Z,N-2)=STR$(TAN(VAL(PI)/18Ø*VAL(S(Z,N-1)))):GOTO 215Ø
21ØØ   S(Z,N-2)=STR$(1/VAL(S(Z,N-1))):GOTO 215Ø
211Ø   S(Z,N-2)=STR$(EXP(VAL(S(Z,N-1)))):GOTO 215Ø
212Ø   S(Z,N-2)=STR$(SQR(VAL(S(Z,N-1)))):GOTO 215Ø
213Ø   S(Z,N-2)=STR$(LOG(VAL(S(Z,N-1)))):GOTO 215Ø
214Ø   S(Z,N-3)=STR$(VAL(S(Z,N-3))^VAL(S(Z,N-1))):N(Z,N-3)=Ø:S(Z,N-1)="":N=N-2:G
OTO 217Ø
215Ø   N(Z,N-2)=Ø
216Ø   N=N-1
217Ø RETURN
218Ø 'SUB DISPLAY RESULT
219Ø   IF Y=S(Ø,Ø) THEN 221Ø
22ØØ   O=1:Y=S(Z,Ø):GOSUB 8ØØ
221Ø   S(Z,1)="="
222Ø RETURN
```

```
223Ø 'SUB LOGIC FOR = IN STACK IF NEXT INPUT IS OPERATOR
224Ø   IF S(Z,N-1)<>"="  THEN 227Ø
225Ø   D=S(Z,N-2)
226Ø   N=N-2
227Ø RETURN
228Ø 'SUB LOGIC FOR = IN REGISTER IF NEXT INPUT IS NUMERIC
229Ø   IF S(Z,N-1)<>"=" THEN 231Ø
23ØØ   N=N-2
231Ø RETURN
232Ø 'DECIDE OPERATOR HIERARCHY
233Ø   IF C="+" OR C="-" THEN H=1
234Ø   IF C="*" OR C="/" THEN H=2
235Ø   IF INSTR("SCTNXQWL",C)>Ø THEN H=4
236Ø   IF C="=" OR C="]" THEN H=Ø
237Ø RETURN
238Ø 'SUB PERFORM FUNCTION IF READY
239Ø   IF N<4 THEN 25ØØ
24ØØ   IF N(Z,N-3)<N(Z,N-1) AND N(Z,N-1)<>4 THEN 25ØØ
241Ø   IF S(Z,N-3)="+" THEN S(Z,N-4)=STR$(VAL(S(Z,N-4))+VAL(S(Z,N-2)))
242Ø   IF S(Z,N-3)="-" THEN S(Z,N-4)=STR$(VAL(S(Z,N-4))-VAL(S(Z,N-2)))
243Ø   IF S(Z,N-3)="*" THEN S(Z,N-4)=STR$(VAL(S(Z,N-4))*VAL(S(Z,N-2)))
244Ø   IF S(Z,N-3)="/" THEN S(Z,N-4)=STR$(VAL(S(Z,N-4))/VAL(S(Z,N-2)))
245Ø   IF S(Z,N-3)="%" THEN S(Z,N-4)=STR$(VAL(S(Z,N-4))*1ØØ/VAL(S(Z,N-2)))
246Ø   S(Z,N-3)=S(Z,N-1):N(Z,N-3)=N(Z,N-1): 'MOVE DOWN OPERATOR
247Ø   FOR X=N-2 TO N-1:S(Z,X)="":N(Z,X)=Ø:NEXT:'SET USED REGISTERS TO Ø
248Ø   Y=S(Z,N-4):GOSUB 8ØØ:N=N-2
249Ø   GOTO 239Ø
25ØØ RETURN
```


Invest in Your Future

New Products • Prices • Features

Stock Portfolio One

If you want to track your investments, Stock Portfolio One is the answer. A tool for making better decisions, it gives you a daily picture of how your stocks are doing on the market.

Graph the price and volume traded over time, and see a moving average value of each stock.

On a single floppy disk, Stock Portfolio One will handle four portfolios and store a year's worth of quotes on 30 stocks. $49.95.

Budget Forecast

Our most popular home budgeting program, this easy-to-use package produces monthly forecast worksheets.

Track your income and expenses, and estimate taxes due and withheld at the end of the year. $49.95.

General Graphics Utility (GGU), Version 2

Like Verson 1, GGU Version 2 gives you professional looking graphics by displaying and printing line, bar and pie graphs.

What's new: Version 2 has windows, so you can view 1 to 4 graphs with the same or different variables on a single screen. It allows comparisons like you've never seen!

Version 2 will support a color printer with up to 6 colors on the Sanyo 555 or 3 colors on the 885. It requires 256K but only a single disk drive. All for $49.95!

Other Software from BGW Systems

- **ACCESS FIVE©** **$69.95**
  Manage mailing lists, client contacts
- **TRACK©** **$59.95**
  Track time and expenses, do billing.
- **General Ledger** **$59.95**
  Generate financial reports using InfoStar.
- **General Graphics Utility (V.1)** **$29.95**
  Basic business graphics package.

Holiday Special: Purchase 2 programs and save 20%; purchase 3, and save 30% during November and December.

To order any of these programs, send check or money order to BGW Systems, Inc. Include $3.00 shipping charge and specify hardware system when you order.

*TRACK© and GL require the InfoStar package. Stock Portfolio One, ACCESS FIVE©, and GGU V.2 run on the Sanyo, IBM-PC and compatibles. GGU V.1 runs on the Sanyo only.

BGW SYSTEMS, INC. $49.95 16714 S. Meridian, Suite 200 Puyallup, WA 98373 (206) 845-7845

COMMUNICATIONS ON YOUR SANYO 550-555

SPECIAL — ONLY $99.95

1. **COMTEL C400 RS232 SERIAL PORT**
2. **YOUR CHOICE:**
   INTELLICOM COMMUNICATIONS SOFTWARE
   OR
   VERSACOM COMMUNICATIONS SOFTWARE
3. **CUSTOM MODEM CABLE (PLEASE SPECIFY MODEM)**

ALL FOR ONLY $99.95!

OTHER FINE PRODUCTS FOR YOUR SANYO 550-555:

RGB SWITCH CABLE (FOR SANYO VIDEO BOARD)	$56.00
PARALLEL/SERIAL SWITCHBOX (2 POSITION)	$120.00
CUSTOM CABLES	CALL
RS232 SERIAL PORT	$45.00
INTELLICOM COMMUNICATIONS SOFTWARE	$65.95
VERSACOM COMMUNICATIONS SOFTWARE	$50.00

FOR YOUR IBM COMPATIBLE 775-885:

IBM 3780 BISYNC EMULATOR PACKAGE	$950.00

COMTEL CORPORATION
2103 E. CEDAR STREET SUITE 3
TEMPE, AZ 85281
(602) 829-9471

PRICES ARE FOR PREPAID WITH CERTIFIED FUNDS. PERSONAL CHECKS ALLOW TWO WEEKS FOR CLEARANCE.

TIME BANDIT Bill Dunlevy & Harry Lafnear

ACTION! Battle the Looking Lurker, Killer Smurphs, and others as you try to escape with the Treasures of Time. But hurry Bandit, the Technopatrol is hot on your trail!

ADVENTURE! Over TWENTY unique screens let you explore medieval dungeons, western frontiers, and future science in one game! And embedded somewhere within the 300 LEVELS OF TIME are the NINE GREAT ARTIFACTS! Can YOU find them all?

ART! This machine language epic will dazzle the fussiest graphic gawker and challenge the quickest arcade player. Beautiful scrolling landscapes, life-like animation, thrilling sound effects, and HUNDREDS OF DETAILED SCREENS -- The conquest of Time and Space awaits you...

128K Sanyo 550/555, Joystick recomm . . $39.95

CHECKMATE

Chess players, prepare for the ultimate challenge! Announcing CHECKMATE! From the opening play you can see the computer "think" as it contemplates each move. This classic game has a level of play for every degree of skill: from novice, to tournament caliber for the expert! Superb graphics put you right across from the Master. And if you can't decide on a move, ask the computer to suggest one! You can even switch sides and save games to disk for future reference or replay. Match wits with the computer in the most challenging strategy game of all!

128K Sanyo 550/555 and MS-DOS 2.11 . . . . . $39.95

SPEED RACER Bruce Hansen

The checkered flag drops as your pulse rises in this lively, new arcade game. The road twists to the horizon on a 3-D panorama that sets the stage for the most exciting race the Sanyo has ever seen! Vie for time as you speed through the curves. Stay ahead of the pack, but beware of those who will stop at nothing to slow you down! Four challenging raceways, complete with obstacles and 3-D scenery, put your skills to the test in this Turbo™ type game.

128K Sanyo 550/555, Joystick recomm . . $34.95

THUNDER CHIEF McKenzie & Sorenson

Join the crew of the THUNDER CHIEF on a spectacular flight into danger, daring, and downright fun! Each mission in this 3-D jet simulator consists of another unique scenario: from defending American soil, to provocative attacks behind enemy lines--on Earth, and beyond! Can you overcome the challenge of swifter enemy missiles, tougher tanks, and smarter helicopters, or will you become a fireball over Moscow? Only your skill's the limit in this high-flying arcade game.

192K Sanyo 550/555, Joystick recomm . . $34.95

PLEDGE by Jon Kring

Once the financial staff at your church tries PLEDGE, they'll vow never to go back to pen and paper. This new pledge-tracking program will take hours off recording donations, preparing reports, and mailing statements.

PLEDGE requires no computer knowledge and comes with friendly instructions. Data entry is a snap; easy-to-understand screens aid the user in typing data. Just a few keystrokes produce any of five neat, detailed reports: member rosters, pledge summary, collections, pledge vs. given, and year-to-date summary.

128K Sanyo 550/555, IBM compatible . . $199.95

TYPE RIGHT by Ken Olson

Whether you want to end the fumbling of hunt-and-peck typing, or simply improve your speed and accuracy, TYPE RIGHT is the answer. Learn touch-typing in a way that ends computer anxiety and keyboard fears. Written in MACHINE LANGUAGE to be fast and accurate, TYPE RIGHT never misses a key. Color graphics and large letters make TYPE RIGHT perfect for any age! Learn at your own pace; repeat a previous drill, or forge ahead to sample paragraphs. TYPE RIGHT offers friendly, menu-driven use, and keeps track of everyone's personal progress.

128K Sanyo 550/555 . . . . . $34.95

MichTron

576 S. Telegraph, Pontiac, MI 48053
Orders and Information (313) 334-5700
Prices Do Not Include Shipping and Handling

Do you carry a wallet so burdened with business cards that it threatens the slim line of your Sansabelt slacks? Or do you have to search every drawer in your desk to locate the business address of that paper salesman who came to see you last spring? Well, take heart. We've got what you're looking for . . .

One day when cleaning up my office (a rare occasion), I realized how many business cards I had collected. It seemed logical that since I had my Sanyo sitting on my desk, I should enter the cards into a data file for ready access. The *InfoStar* package that came with the computer could have been used for the job but would have been more bother than it was worth so I wrote *CardFile*, a short BASIC program which runs on a single disk system with 256K of memory.

The program is a fixed format, database manager designed to allow rapid access of up to 104 "cards" (records). The user can add, delete, or edit individual cards as well as print them out or sort them. Each card consists of a 27-character index entry and up to 10 lines (50 characters each) of information. To give the appearance of a cardfile, the GET and PUT statements are used to draw card outlines.

To start the program from DOS, type `BASIC "CARDFILE"/F:6`.

The `/F:6` is required if you plan on sorting your data, as six files must be open at once. Note: The `F` *must* be uppercase or the system will return to DOS. If you forget to use the `/F:6`, you will still be able to run the program but will receive an error if you try to sort the files. When the program is initially run, it looks for three files (`CARDS1.DTA`, `CARDS2.DTA`, and `CARDS3.DTA`). If they are not found, then they are created requiring about 55K of disk space. `CARDS1.DTA` is used to store the card index while `CARD2.DTA` and `CARD3.DTA` store the first five or the last five lines of each card. Another 55K of space must also be on the disk to allow for the SORT option.

After file creation, or if a data set exists, the program will initialize by loading the index for all 104 cards on to an array. This allows for the rapid display of each card on the main screen as disk access is not required. The first eight cards are then displayed with the index value shown at the top of each card. If a card is blank, a line is drawn. An arrow indicates which card you are at. By using the plus (+) or minus (–) key (on the numeric keypad), you can scroll through the cards. Upon finding the desired card, hitting the RETURN key will select it for display. The entire card is drawn and any information that has been entered will be given. You are then given the option of returning to the main display and of editing, deleting or printing the card. New entries may be made by selecting a blank card or writing over an old one. When entering index values, be consistent so that any sorting you do will have the desired effect.

From the main screen you also have the options of ending the program by pressing the ESCAPE key, printing out all of the index values or sorting the data files. When printing out the index, only non-blank records will be listed. The sort used is a modified Shell sort which initially sorts the index array and then writes the sorted information to a new set of files. Upon completion, it deletes the original files and then renames the new files. The sort is actually based on the ASCII codes for the characters in the header and is case dependent. The order for the sort will be `0,1 . . . ,9,A,B,C . . . . ,X,Y,Z,a,b,c, . . . . ,x,y,z`. As a result, a sort involving the two headers: DOE, John and Doe, Aaron will result in DOE, John being listed first. While this might be an inconvenience, it can be used to your advantage if you want to make sure that important records are kept at the beginning of the file. To do this, simply place a space as the first character in the index entry.

As the program is currently written, you can rapidly scroll through the records (eight at a time) by placing the arrow at the first or the eighth record on the screen and then pressing either the plus or minus key. The next or previous eight records will then be displayed. Alternate scrolling routines can be used by changing two lines in the program. To have the records scroll up or down one record at a time, make the following changes:

```
510 IF A$="-" AND J=2 AND COUNT>1
    THEN COUNT=COUNT-1:GOTO 390
520 IF A$="+" AND J=23 AND COUNT<
    104 THEN COUNT=COUNT+1:GOTO
    390
```

Another scrolling scheme which still scrolls eight records at a time but places the arrow at the next record can be accomplished by the following:

```
510 IF A$="-" AND J=2 AND COUNT>=9
    THEN COUNT=COUNT-8:LOCATE
    J,1:PRINT" ";:J=23:GOTO 390
520 IF A$="+" AND J=2 AND COUNT<
    =92 THEN COUNT=COUNT+8:LOCATE
    J,1:PRINT" ";:J=2:GOTO 390
```

While *CardFile* has been written to keep track of business cards, it can be used to keep track of any sort of information; for example, recipes. The index could be set up as food type, nature (e.g., Chicken, Kiev or Dough, Pizza). Sorting the index would then group all of the same food types together. You could then scroll down to chicken and pick a recipe. Other uses could include maintaining membership rolls or term paper notes.

Since the *CardFile* system only keeps track of a single set of data, it is advisable that each set of records be kept on separate disks along with a copy of the *CardFile* program. By adding the following

(Dr. James Hardy is a chemistry professor at the University of Akron. He has written several published articles dealing with computer simulation, computer assisted instruction and interfacing. He may be contacted at the Dept. of Chemistry, University of Akron, Akron, OH 44375; 216-375-6061.)

256K Required

Card File

By Dr. James K. Hardy

line, you can label each copy of the program so you can keep track of which data set you are working with:

```
485 LOCATE 12,60:PRINT"data set name";
```

I'm sure there are several uses or options for the program that I have not considered. If you can think of any, I'd be happy to hear from you.

Modifications For GW-BASIC

The program can be easily modified to run under GW-BASIC. These changes, however, do not prevent it from running under Sanyo BASIC. When running GW-BASIC, load the program with BASICA CARDFILE /F:6 /S:250. The /S:250 will allow you to use a record length up to the 250 characters required by the program (the default is 128).

Next, add the following line to the program:

```
5 KEY OFF:SCREEN 2
```

This will turn off the key labels and allow for high resolution graphics.

Since GW-BASIC does not allow you to use high resolution graphics and color at the same time you will also have to delete or omit all COLOR statements (lines 20, 170, 340, 430, 550, 610, 630, 750, 790, 800, 830, 840, 890, 960, and 970).

Listing 1: CARDFILE.BAS

```
10 OPTION BASE 1
20 CLS:COLOR 6:LOCATE 5,1:PRINT"CardFile"
30 LOCATE 12,1:PRINT"Initializing.  Please hold ....."
40 DIM A%(9245),B%(2675),A$(105),B$(10),C$(10),P%(105),D$(10)
50 DEFINT I,J
60 OPEN "R",1,"CARDS1.DTA",27
70 OPEN "R",2,"CARDS2.DTA",250
80 OPEN "R",3,"CARDS3.DTA",250
90 FIELD #1, 27 AS AA$
100 FIELD #2, 50 AS B$(1), 50 AS B$(2), 50 AS B$(3), 50 AS B$(4), 50 AS B$(5)
110 FIELD #3, 50 AS B$(6), 50 AS B$(7), 50 AS B$(8), 50 AS B$(9), 50 AS B$(10)
120 ON ERROR GOTO 1210
130 GET 1,105
140 IF LEFT$(AA$,1)<> CHR$(255) THEN 1210
150 ON ERROR GOTO 0
160 FOR I=1 TO 105:GET 1,I:A$(I)=AA$:NEXT I
170 CLS:COLOR 3
240 G1$=CHR$(201):G2$=CHR$(205):G3$=CHR$(187):G4$=CHR$(186):G5$=CHR$(200):G6$=CH
R$(188):G7$=CHR$(32):G8$=CHR$(95)
250 PRINT G7$;:PRINT G1$;:FOR X=1 TO 29:PRINT G2$;:NEXT:PRINT G3$
260 PRINT G7$;:PRINT G4$;:PRINT G7$;:FOR X=1 TO 27:PRINT G8$;:NEXT:PRINT G7$;:PR
INT G4$
270 PRINT G7$;:PRINT G4$;:FOR X=1 TO 29:PRINT G7$;:NEXT:PRINT G5$;:FOR X=1 TO 22
:PRINT G2$;:NEXT:PRINT G3$
280 REPS=0:WHILE REPS<10
290 PRINT G7$;:PRINT G4$;:PRINT G7$;:FOR X=1 TO 50:PRINT G8$;:NEXT:PRINT G7$;:PR
INT G4$
300 REPS=REPS+1:WEND
310 PRINT G7$;:PRINT G5$;:FOR X=1 TO 52:PRINT G2$;:NEXT:PRINT G6$
```

```
32Ø LOCATE 1,1
33Ø GET (9,Ø)-(439,111),A%:GET (9,Ø)-(439,26),B%
34Ø CLS:COLOR 3
35Ø FOR I=Ø TO 24*7 STEP 24
36Ø PUT (9,I),B%
37Ø NEXT I
38Ø COUNT=1:J=2
39Ø COLOR 7:FOR I=2 TO 23 STEP 3:LOCATE I,4
4ØØ IF LEFT$(A$(COUNT+INT(I/3)),1)=CHR$(255) THEN PRINT"_____
___";:GOTO 42Ø
41Ø PRINT A$(COUNT+INT(I/3));
42Ø NEXT I
43Ø COLOR 6:LOCATE 1,6Ø:PRINT"Card #";COUNT+INT(J/3);
44Ø LOCATE 3,6Ø:PRINT"Esc to end";
45Ø LOCATE 4,6Ø:PRINT"+ or - to scroll";
46Ø LOCATE 5, 6Ø:PRINT"Enter to select";
47Ø LOCATE 8,6Ø:PRINT"S to sort";
48Ø LOCATE 9,6Ø:PRINT"P to print index";
49Ø LOCATE J,1:PRINT CHR$(26);
5ØØ A$=INKEY$:IF A$="" THEN 5ØØ
51Ø IF A$="-" AND J=2 AND COUNT>=9 THEN COUNT=COUNT-8:GOTO 39Ø
52Ø IF A$="+" AND J=23 AND COUNT<=92 THEN COUNT=COUNT+8:GOTO 39Ø
53Ø IF A$="-" AND J>2 THEN LOCATE J,1:PRINT" ";:J=J-3:LOCATE J,1:PRINT CHR$(26);
54Ø IF A$="+" AND J<23 THEN LOCATE J,1:PRINT" ";:J=J+3:LOCATE J,1:PRINT CHR$(26)
;
55Ø IF A$=CHR$(13) THEN LOCATE 25,8Ø:CLS:COLOR 3:PUT (9,Ø),A%:GOTO 61Ø
56Ø IF A$="S" OR A$="s" THEN 97Ø
57Ø IF A$="P" OR A$="p" THEN 134Ø
58Ø IF A$=CHR$(27) THEN CLOSE:CLS:PRINT"End":END
59Ø LOCATE 1,6Ø:PRINT"Card #";COUNT+INT(J/3);:LOCATE J,1
6ØØ GOTO 5ØØ
61Ø COLOR 6:LOCATE 25,1:PRINT"(E)dit, (D)elete, (P)rint or (R)eturn ";
62Ø RECORD=COUNT+INT(J/3):GET 1,RECORD:GET 2,RECORD:GET 3,RECORD
63Ø COLOR 6:LOCATE 2,4:IF LEFT$(AA$,1)<>CHR$(255) THEN PRINT AA$;
64Ø FOR I=1 TO 1Ø:LOCATE I+3,4
65Ø IF LEFT$(B$(I),1)<> CHR$(255) THEN PRINT B$(I);
66Ø NEXT I:LOCATE 25,38
67Ø A$=INKEY$:IF A$="" THEN 67Ø
68Ø IF A$="E" OR A$="e" THEN 73Ø
69Ø IF A$="R" OR A$="r" THEN CLS:FOR J1=Ø TO 24*7 STEP 24:PUT (9,J1),B%:NEXT J1:
LOCATE J,1:GOTO 39Ø
7ØØ IF A$="D" OR A$="d" THEN 96Ø
71Ø IF A$="p" OR A$="P" THEN LPRINT"Card #";RECORD:LPRINT AA$:FOR I1=1 TO 1Ø:LPR
INT B$(I1):NEXT I1:LPRINT:GOTO 61Ø
72Ø GOTO 67Ø
73Ø LOCATE 25,1:PRINT"CR to skip, * to end
74Ø LOCATE 21,2Ø:PRINT"<------------------------>";                    ";
75Ø LOCATE 2Ø,1:PRINT"Header ";:COLOR 7:LOCATE 2Ø,2Ø:LINE INPUT HEADER$
76Ø IF LEN(HEADER$)=Ø THEN 8ØØ
77Ø IF HEADER$="*" THEN 61Ø
78Ø HEADER$=LEFT$(HEADER$+"
79Ø COLOR 7:LOCATE 2,4:PRINT HEADER$;                    ",27)
8ØØ LOCATE 21,2Ø:PRINT SPC(27);:COLOR 6
81Ø LOCATE 21,2Ø:PRINT"<-------------------------------------------------->";
82Ø FOR I=1 TO 1Ø
83Ø LOCATE 2Ø,1:PRINT SPC(79);:LOCATE 2Ø,1:COLOR 6
84Ø LOCATE 2Ø,1:PRINT"Line #";I;":";:LOCATE 2Ø,2Ø:COLOR 7:LINE INPUT C$(I)
85Ø IF LEN(C$(I))>5Ø THEN 83Ø
86Ø IF LEN(C$(I))=Ø THEN 9ØØ
```

A-OK Computers

The A-OK Board™—The Ultimate Upgrade™
"960K + 8 MHz"

The A-OK Board lets you double your processor speed and nearly quadruple your RAM. **The A-OK Board** plugs inside your Sanyo with no soldering. **The A-OK Board** works fine with or without the Video Board and is fully compatible with all software which runs on your Sanyo. **The A-OK Board**'s 8088-2 chip does all your processing, even Ramdisk, twice as fast. Plug one bank of 256K chips into **The A-OK Board** to double your RAM to 512K or two banks for 768K or a third bank for 960K of contiguous RAM. See our **TurboDrive550** ad about 800K ramdisks. Options include a real-time clock/calendar. The **A-OK Board** has been completely redesigned so that you can replace the 8MHz 8088-2 with the new 10 MHz or 12 MHz 8088's when they become available. Sorry about past delays, but we didn't want to sell you something that we would soon make obsolete. The **A-OK Board** *is* **The Ultimate Upgrade.**

A-OK Board with no memory $150
8088-2 chip for high speed on **A-OK Board** . . . . . $ 25
A-OK Board with "the works" $395

TurboLinker™
"The Linker for Turbo Pascal"

TurboLinker accelerates the compilation of your Turbo Pascal 2.0 and 3.0 programs. **TurboLinker** provides a program that turns your debugged and compiled Turbo Pascal procedures into compact, linkable external procedures. Because they are already compiled, these procedures link instantly into the code you are debugging. **TurboLinker**'s linkable procedures use much less memory than the Turbo Pascal source code they come from. Thus you can bring them in off disk faster and store more of them on RAM disk. **TurboLinker** is easy to use, self-documenting, and works from the Turbo Pascal Program Development Environment. An extra bonus—now you can sell procedures written in Turbo Pascal as linkable procedures without having to disclose your source code. A-OK is looking for high-quality Turbo Pascal libraries to market. Why waste time recompiling code that you know works? **TurboLinker** is the ideal upgrade for Turbo Pascal.

TurboLinker for Turbo Pascal 2.0 and 3.0 . . . . . $49
TurboLinker for Turbo Pascal 2.0, 3.0, BCD, and 8087 . . . . . $75

SANYGRAF
"Professional Business Graphics"

A-OK searched the world to bring you the best business graphics for your Sanyo. We are delighted by what we found—**SANYGRAF. SANYGRAF**'s well thought-out menus and superb documentation, make this extremely versatile software very easy to master. **SANYGRAF** is *very* fast and even faster with an 8087. **SANYGRAF** supports popular plotters. **SANYGRAF** is so good that Sanyo Australia supplies it with every color graphics system it sells.
2.11, 256K, one DSDD or DSQD drive required.

SANYGRAF $99

Janus/Ada
"The Ada for Micros"

Now you can use the language of the future on your Sanyo, IBM, Zenith, etc. For just $99, you get the **Janus/Ada** Compiler, Linker, Libraries, Example Programs, User Manual, and User Group Membership! Great for learning Ada and for serious programming.

A-OK is pleased to announce its selection as the only distributor of **Janus/Ada** on the exclusive Federal Government's GSA Schedule. Our contract number is GS00K85AGS6083.

Janus/Ada C-Pak $99

TurboDrive550™
"A Quality Ram Disk for Sanyo"

TurboDrive550 turns your unused RAM into a disk drive.
TurboDrive550 is very fast.

- Speeds up all disk intensive software.
- Makes WordStar and FORMSORT run more quickly.
  - Accesses disk 75,000 times faster than hard disk.
- Makes 800K ramdisks on the **A-OK Board**.
  - Using the new **A-OK DOS-3** with your single or double-sided drives.
  - Using the new **A-OK DOS-4** with your quad drives.

TurboDrive550 is a low-cost alternative to a second disk drive.
Compare **TurboDrive550's** features to the competition.

- **TurboDrive550** works even if you only have 128K.
- **TurboDrive550** protects you from allocating more space than is available.
- A-OK provides a COM file in MS-DOS 1.25 which lets you gracefully free **TurboDrive550**'s space.
- **TurboDrive550** lets you use its menu or parameters.

TurboDrive 550 is The Phantom Buster.

TurboDrive550 comes **FREE** with every new **A-OK DOS 1-4**™ and is available as a $7 upgrade to current **A-OK DOS** owners.
TurboDrive550 for other Sanyo DOSs $33
(The best deal is to buy **A-OK DOS-1**™ for $35 and get **TurboDrive550** free.)

Contact!
"Mailing Lists and More"

Contact! makes it incredibly easy for you to create and maintain business and personal mailing lists. **Contact!** prints mailing labels in the order you want and creates files ready for MailMerge. **Contact!** even prints out your address book complete with phone numbers. Requires 2.11 or Video Board.

Contact! $35

N-Code™
"If You are Serious about Data Security"

N-Code for the Sanyo MBC-550 Series or IBM PC $79

Microsoft FORTRAN 77 (limited supply) $219

"AMBIZ-PAK"™

Fifteen programs for Amway Product Distributors **$100**

UPGRADE TO 800K PER DRIVE

Increase your disk capacity to 800K per drive using A-OK's **DSQD Kit**™ which includes: 2 first quality new TEAC 55F double-sided quad-density (DSQD) drives which replace the TEACs in your Sanyo, **A-OK DOS-4**, complete easy instructions, and all parts needed.

DSQD Kit $355

DSDD Kit™

Upgrade to 400K per drive—same as DSQD Kit but with 2 TEAC 54B drives and **A-OK DOS-2.**

DSDD Kit $295

VidSwitch550™

Just push a button on the left front side of your Sanyo and you've switched from the Sanyo graphics port to the Video Board port. Another push of the button on this small box switches it back. The monochrome version requires only the mono cable you already have. The color version requires no extra cables. Everything just plugs in.

VidSwitch550—Monochrome $29
VidSwitch550—Color (no sync inversion) $69

XCord550™
"Extension Cord for your Sanyo PC Keyboard"

XCord550 6 foot **$15**

RS232C Serial Boards $72

THE A-OK TEAM

Join the team that created the **A-OK DOS** Family—the choice of OEMs, **PrintScreen550, TurboDrive550, The A-OK Board** and other top-quality software and hardware. We sell only the best. Fewer titles, better promotion. Give us a call. Join the **A-OK Team.**

SEE OUR OTHER FULL-PAGE AD FOR ORDERING INSTRUCTIONS.

DEALER, DISTRIBUTOR, AND OEM INQUIRIES INVITED

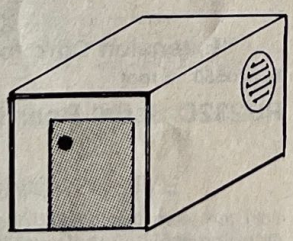
A-OK Computers 816 Easley St., Suite 615 • Silver Spring, MD 20910 301-585-5105, 301-585-5106

© Copyright 1984 Apollo Optics & Kinematics, Inc.

```
87Ø IF C$(I)="*" THEN 91Ø                                              ",5Ø)
88Ø C$(I)=LEFT$(C$(I)+"
89Ø LOCATE I+3,4:COLOR 7:PRINT C$(I);
9ØØ NEXT I
91Ø IF HEADER$<>"*" AND LEN(HEADER$)<>Ø THEN LSET AA$=HEADER$:A$(RECORD)=HEADER$
:HEADER$=""
915 LOCATE 2Ø,1:PRINT SPC(6Ø);:LOCATE 21,1:PRINT SPC(7Ø);
92Ø FOR I=1 TO 1Ø
93Ø IF C$(I)<>"*" AND LEN(C$(I))>Ø THEN LSET B$(I)=C$(I):C$(I)=""
94Ø NEXT I:PUT 1,RECORD:PUT 2,RECORD:PUT 3,RECORD
95Ø GOTO 61Ø
96Ø COLOR 6:HEADER$=CHR$(255):LOCATE 2,4:PRINT "_____";:FO
R I=1 TO 1Ø:LOCATE I+3,4:PRINT"_____
_";:C$(I)=CHR$(255):NEXT I:GOTO 91Ø
97Ø COLOR 6:CLS:LOCATE 13,1:PRINT"Now sorting.  Please hold ........"
98Ø FOR I=1 TO 1Ø5:P%(I)=I:NEXT I:D=2^INT(LOG(1Ø4)/LOG(2))-1
99Ø FOR I=1 TO 1Ø5-D:IF A$(P%(I))<=A$(P%(I+D)) THEN 1Ø4Ø
1ØØØ T%=P%(I+D):P%(I+D)=P%(I):IF I<=D THEN P%(I)=T%:GOTO 1Ø4Ø
1Ø1Ø FOR J=I-D TO 1 STEP-D:IF A$(T%)>=A$(P%(J)) THEN 1Ø3Ø
1Ø2Ø P%(J+D)=P%(J):NEXT J
1Ø3Ø P%(J+D)=T%
1Ø4Ø NEXT I:D=INT(D/2):IF D>Ø THEN 99Ø
1Ø5Ø LOCATE 15,1:PRINT"Now storing sorted files .......";
1Ø6Ø OPEN "R",4,"CARDS1.Dat",27
1Ø7Ø OPEN "R",5,"CARDS2.Dat",25Ø
1Ø8Ø OPEN "R",6,"CARDS3.Dat",25Ø
1Ø9Ø FIELD #4, 27 AS BB$
11ØØ FIELD #5, 5Ø AS D$(1), 5Ø AS D$(2), 5Ø AS D$(3), 5Ø AS D$(4), 5Ø AS D$(5)
```


HARD DRIVE SYSTEMS
FOR SANYO 550
EXTERNAL DRIVE SYSTEMS
Which Do Not Put A Drain On Internal Power Supply.

Includes:
Software, Drive, Controller, Interface & Power Supply.



INTRODUCTORY PRICE
5 meg $545. 10 meg $695.
20 meg $895.

INTERFACE & SOFTWARE
only... $119.

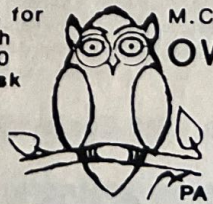
DISK DRIVES
NEW EPSON DS!!!
Lower power requirements than TEAC! Superb!!!

Epson DS,DD (400K)..... $105.
TEAC DS,DD (400K)..... $109.
TEAC DSQD (800K)..... $115.
Second Drive $5. Less
1 Year Warranty on ALL Drives.

External Drive Kits
$115. ($85. with Drive Order)
Includes all Cables & Instructions.
Holds up to 2 Drives.

MT BASIC $49.95
MULTI-TASKING & WINDOWING BASIC COMPILER Yields Fast Machine Code for the SANYO.
SANYO BASIC REF. MANUAL $29.

NOTE: Add $35. for AOK DOS which gives 8,9 or 10 sectors per disk and up to 0.8 meg per drive!!!



M.C. & VISA Accepted
OWL-Services
P.O. Box 116-D
Mertztown, PA.
19539
PA Res Include 6% Tax
800 245-6228
PA (215) 682-6855

A-OK Computers

The Center of Creation and Dissemination of Sanyo PC Software and Hardware

The A-OK™ DOS Family

"Upgrade your MS-DOS 1.25 or 2.11 and Video Board"

All members of the **A-OK DOS** family add these features to your MS-DOS 1.25 or 2.11:

- **A-OK DOS** supports RAM expansion to 960K.

With the Video Board, **A-OK DOS** uses 24K *less* memory than the "competition". With extended memory, **A-OK DOS** uses 55K *less* memory than the "competition".

- **A-OK DOS** now includes *free* high-quality ramdisk software—**TurboDrive550** (a $33 value).
- Still the only text dump for 2.11 automatically transferred via FORMAT /S.
- Prints a screenful of text to any Sanyo-compatible printer.
  - Interactive mode
    - It works with one keystroke in DOS, BASIC and all other software packages that run on the Sanyo.
    - Does not interfere with program execution or affect the data.
  - Batch mode
    - Can be activated in BASIC by a one-line command.
    - Interrupt-driven and can be called from programming languages.
- Supports the only graphics screen dump software built into DOS—**PrintScreen550.**
- Includes a special "Sorted Directory" utility.
- Has a utility to strip the high-order bit off WordStar document files.
- User-controlled scrolling in all subsystems, not just DOS.
- **A-OK DOS** system messages are easier to understand.
- Supports up to 4 disk drives.

A-OK DOS versions for MS-DOS 1.25 correct flaws in MS-DOS 1.25 without sacrificing its strengths.

- All **A-OK DOS/1.25** are much faster and use far less memory than any version of MS-DOS 2.11.
- Runs all software that comes with the Sanyo.

A-OK DOS versions for MS-DOS 2.11:

- Run all software which runs on the Sanyo under MS-DOS 2.11 and Video Board.
- PLUS special support for Sidekick™ and Flight Simulator.™
- Support installable drivers for hard disks, etc.

Comparing **A-OK DOS-3** and DS DOS+, the *Sanyo PC Hackers Newsletter* states "In a nutshell, you get more for your money in A-OK's package". A-OK has tailored different versions of its DOS for varying disk drive configurations. This makes our ad more complex, but our DOS more efficient and easier for you to use.

A-OK DOS-1™

"Not just another Double-Sided DOS"

- Any combination of up to four single and double-sided drives.
- Double-sided drives support single and double-sided diskettes.
- 8 and 9 sector formats—360K, 320K, 180K, and 160K.

A-OK DOS-1/1.25 or **A-OK DOS-1**/2.11 and Video Board **$35**

A-OK DOS-2™

"Increase the Capacity of your Current Drives"

- All the features and formats of **A-OK DOS-1**
- PLUS it reads, writes, and formats 10-sector formats
  - 400K per double-sided diskette on DSDD drives
  - 200K per single-sided diskette on SSDD and DSDD drives
  - uses ordinary diskettes
  - pays for itself in saved diskettes.

A-OK DOS-2/1.25 or **A-OK DOS-2**/2.11 and Video Board **$45**

800K PER DISK DRIVE

A-OK DOS-3™

"**A-OK DOS** for Double and Quad-Density Drive Systems"

- All the features of **A-OK DOS-2**
- PLUS up to 4 double-density and quad-density drives
  - on double-density drives:
    - reads and writes all formats read by 1.25 and 2.11
    - reads, writes, and formats 200K SSDD diskettes
    - reads, writes and formats 400K DSDD diskettes
  - on quad-density drives:
    - reads, writes, and formats 730K and 800K on ordinary diskettes.

A-OK DOS-3/1.25 or **A-OK DOS-3**/2.11 and Video Board **$55**

A-OK DOS-4™

"The *Standard* Quad-Density DOS"

- All the features of **A-OK DOS-2**
- PLUS up to 4 quad drives—3.2 Megabytes of *removable* medium!
  - quad drives read all diskettes written by MS-DOS 1.25 and 2.11
  - quad drives read, write and format 160K, 180K, 200K, 320K, 360K, 400K, 730K, 800K formats on ordinary diskettes.
  - will not run Prolok™ disks.

We at A-OK Computers thank you for making **A-OK DOS-4**™ *the* standard DOS for quad-density drives on the Sanyo. Thousands of copies of **DOS-4**™ are now in use in the most demanding applications—yours. Potential bugs have been identified and corrected, making **DOS-4** a mature, well seasoned tool. Your constant feedback has resulted in the successive refinement of our documentation. After thorough testing and comparison to would-be competitors, Scottsdale Systems, America's No. 1 seller of Sanyos, selected **DOS-4** as the standard DOS supplied with their Silver Fox™. (HAGEN-DOS™ is A-OK DOS-4). And of course, MidWest Micro Peripherals—one of America's largest sellers of computer equipment has selected **A-OK DOS-4** for their quad-based Sanyo. Because **DOS-4** is now the standard, our 720K and 800K formats are also regarded as the standard. Of the quad-density operating systems, only **A-OK DOS-4** supports the very popular **PrintScreen550.** *Soft Sector* sums it up well in their September 1984 review entitled "A-OK DOS and PrintScreen550—An Unbeatable Combination".

A-OK DOS-4 is the choice of OEMs. Don't trust your work to an experimental DOS, be sure your operating system is A-OK.

Look for these features in a quad-density drive DOS:

1. Unique support for Lotus 1-2-3™ and Picasso™ on quad drives.
2. Still the *only* DOS which you can install with quad drives.
3. The system *automatically* recognizes 8/9/10 sector, 40 and 80 track formats without reconfiguration or using alternate drive symbols (e.g. E:, F:, etc.).
4. Free ramdisk—**TurboDrive550**™.
5. Uses low-cost ordinary double-density diskettes.
6. FORMATs, READs, WRITEs, and DISKCOPYs *all* MS-DOS standard formats employed by the Sanyo 550 Series.
7. Uses the standard **DOS-4** 730K and 800K formats.
8. Built-in text screen to printer dump.
9. Supports the *only* graphics screen dump software built into the DOS-**PrintScreen550.**

A-OK DOS-4/1.25 or **A-OK DOS**/2.11 and Video Board $55

PrintScreen550™

"Fast, High-Resolution Graphics and Text from Screen to Printer with One Keystroke"

- **PrintScreen550** now also supports the Video Graphics Board.
- **PrintScreen550** is designed for the everyday needs of most users.
- **PrintScreen550** capabilities
  - Prints a screenful of graphics to most popular printers.
    - This prints everything on the screen whether it's graphics or text.
    - User has the option to rotate the image on the paper. This permits Okidata 92s and other printers with less than 640 horizontal dot positions to print out the full screen.
    - Turns your Sanyo into a high-resolution graphics machine.
      - Multiscreen facility permits a printed image to be 640 dots by an almost unlimited number of dots in the perpendicular direction.
- **PrintScreen550** is flexible and easy to use.
  - Interactive mode
    - Works like the "Print Screen" button on the IBM-PC.
    - One keystroke does it all. No need to embed commands in BASIC. No extra programs to execute. Same single keystroke works in DOS, BASIC and all other software packages that run on the Sanyo.
  - Batch mode can be activated in BASIC by a one-line command.
- **PrintScreen550** is very fast and a lot of fun!

A-OK's PrintScreen550 software pulls the Print Screen button off the IBM-PC and puts it on your Sanyo MBC-550 Series computer.

PrintScreen550 is an option to any A-OK DOS for a meager **$24**

Orders may be placed immediately.

Please send money order or cashiers check. Personal or company checks require 2-3 weeks to clear. Prices reflect a 3% cash discount. MasterCard/VISA/CHOICE accepted. MD residents add 5% sales tax. Out-of-state order, no tax. Prices subject to change. All brands are registered trademarks. 20% restocking fee for all returned merchandise. No returns accepted without a Return Authorization Number.

A-OK Computers 816 Easley St., Suite 615 • Silver Spring, MD 20910 301-585-5105, 301-585-5106

© Copyright 1984, 1985 Apollo Optics & Kinematics, Inc.

```
111Ø FIELD #6, 5Ø AS D$(6), 5Ø AS D$(7), 5Ø AS D$(8), 5Ø AS D$(9), 5Ø AS D$(1Ø)
112Ø FOR I=1 TO 1Ø5:GET 1,P%(I):GET 2,P%(I):GET 3,P%(I)
113Ø LSET BB$=AA$:FOR J=1 TO 1Ø:LSET D$(J)=B$(J):NEXT J
114Ø PUT 4,I:PUT 5,I:PUT 6,I:NEXT I
115Ø CLOSE
116Ø KILL"*.dta"
117Ø NAME "cards1.dat" AS "cards1.dta"
118Ø NAME "cards2.dat" AS "cards2.dta"
119Ø NAME "cards3.dat" AS "cards3.dta"
12ØØ RUN
121Ø CLS:LOCATE 5,1
122Ø PRINT"Program created by Dr. James K. Hardy"
123Ø PRINT"                    Department of Chemistry"
124Ø PRINT"                    The University of Akron"
125Ø PRINT"                    Akron, Ohio   44325"
126Ø LOCATE 2Ø, 1:PRINT"Now creating CARDSx.DTA files";
127Ø FOR I=1 TO 1Ø5
128Ø LSET AA$=CHR$(255):FOR J=1 TO 1Ø:LSET B$(J)=CHR$(255):NEXT J
129Ø PUT 1,I:PUT 2,I:PUT 3,I
13ØØ LOCATE 22,1:PRINT"Card #";I;
131Ø NEXT I
132Ø CLOSE:CLS
133Ø RUN
134Ø CLS:LOCATE 1Ø,1:PRINT"This routine will print out only the non-blank keys i
n the card.dta"
135Ø PRINT"file.  Your printer must be turned on and at top of form."
136Ø PRINT"Hit the spacebar to start, any other key to abort"
137Ø A$=INKEY$:IF A$="" THEN 137Ø
138Ø IF A$<>" " THEN 34Ø
139Ø CLS:LOCATE 12,1:PRINT"Working ..... "
14ØØ TEST=Ø
141Ø LPRINT:LPRINT"    Card#            Key"
142Ø FOR I1=1 TO 1Ø4
143Ø IF LEFT$(A$(I1),1)<>CHR$(255) THEN LPRINT "     ";I1;"  ";A$(I1):TEST=TEST+
1:TEST1=TEST1+1
144Ø IF TEST>=54 THEN LPRINT CHR$(12):TEST=Ø:LPRINT:LPRINT"     Card#
  Key"
145Ø NEXT I1
146Ø LPRINT
147Ø LPRINT "Total cards used = ";TEST1;" out of 1Ø4"
148Ø LPRINT CHR$(12):GOTO 34Ø
```


10 MEG INTERNAL HARD DISK

Complete subassembly for MBC 550/555 Series with host adaptor and installation software, backup & restore for 1.25 or 2.11 DOS, Instructions. Simple Installation.

1 YEAR WARRANTY **$ 879**

Call for price updates (206) 938-1385

INVENTORY SYSTEMS of Washington
8653 Fauntleroy Way S.W. Seattle, WA 98136

COMMUNICATIONS FOR $29.95
THE GREAT COMMUNICATOR (tm)

$29.95 ($49.95 for commented Turbo Pascal Source)

COMPARE THESE FEATURES

- Interrupt Driven
- File Transfers
- On-Line Help
- DOS Command execution
- Full Window Support
- Auto-Dial Phone Directory
- NO Commands to Learn
- ...and much, MUCH More

Specify SANYO 55X or IBM version when ordering.
Check or money order (add $2.00 for post & hand) to:
INFORMATION TECHNOLOGY & CONSULTING
PO Box 554, Coventry, RI 02816 (401) 822-4338

Helpful Hint . . .

Speeding Up *WordStar*

Editor:

The article by Charles Annis (SOFT SECTOR, August '85, Page 44) was great. *WordStar* now responds like it does on my CP/M computer. A previous hint on changing the delete keys was also appreciated.

Some of your readers may not be aware of a few other speed-up patches available using the *Install* program. You must enter the plus sign (+) at the menu in order to enter the following labels and their changes:

```
:DELMIS   00h
:DELCUS   00h
:DEL1     00h
:DEL2     00h
:DEL3     00h--34h   Pause before a menu appears
:DEL4     00h--07h   Pause after sign-on message
:DEL5     00h
```

Under certain conditions, phantom lines may appear on the screen, but only for a moment. You may elect to not set the delays to zero, but instead to a value somewhat less than the original. The dashes in DEL3,4 refer to a range of possible values to input. Changing DEL3 to a higher value increases the delay before another menu appears after a control key input, thus giving time to input the second key of a two-key command before the menu is printed on the screen. (Nice after one has memorized the commands.) These patches will work under any operating system and do not require the Video RAM Board. Some of these ideas appeared in *Foghorn*, the First Osborne Group newsletter.

Ed Buttenhoff
Grand Rapids, MI

DISK DRIVE FOR SANYO
TEAC 55B 112
TEAC 55F.....119

ACCESSORIES
8087 APV CHIP 119
VIDEO BOARD.....159
FOUR COLOR PLOTTER.....450

MEMORY UPGRADE
64K (150NS) 10.95
128K (150NS) 18.95

BULK DISK
Lifetime Warrantee
20 SS/DD DISKS 19.00
20 DS/DD DISKS 23.00

SOFTWARE BY SPECTRUM SOLUTIONS

TYPEWRITER.....19.95
USE YOUR SANYO AS AN ELECTRONIC MEMORY TYPEWRITER. YOU ONLY NEED TO KNOW TWO COMMANDS.

SPECTRUM UTILITY PAK (now available) 29.95
LOTS OF UTILITIES LIKE MUSIC, ALARM CLOCK AND FAMOUS HACK COPY INCLUDES PATCHES FOR PICASSO AND "THE ANCIENT ART OF WAR"

LOGMASTER.....24.95
KEEPS TRACK OF COMPUTER USAGE FOR BUSINESS AND TAX PURPOSES

Q-BREAKER.....24.95
UNPROTECTS PROTECTED BASIC PROGRAMS SAVED FROM SANYO BASIC

DEALER GRAPHICS DEMO.....29.95
THIS AMAZING GRAPHICS DEMONSTRATOR WILL SELL SANYO BY SHOWING YOUR CUSTOMERS THE SUPERIOR GRAPHICS ABILITY OF THE SANYO
SPECIAL NOTE: GRAPHICS DEMO IS FREE TO DEALERS WHO ORDER 4 OR MORE PROGRAMS

MASTERBRAIN.....19.95
A GAME OF SKILL AND CHALLENGE BY THE MASTERBRAIN!

BIORHYTHMS.....14.95
CHART YOUR BIORHYHMS WITH SANYO'S HI-RES GRAPHICS. RECEIVE $5 DISCOUNT ON BIORHYTHMS IF ORDERED WITH ANY OTHER PROGRAM

HOURS 9-6 E.S.T. MON.-FRI. CLOSED SAT. SPECTRUM SOLUTIONS HAS YOUR LONG DISTANCE SOLUTION!
NOW OPEN MOST SUNDAYS 10-5!
CALL ON SUNDAY WHEN THE LONG DISTANCE RATES ARE LOWEST.

DEALER AND DISTRIBUTOR INQUIRES WELCOME

SPECTRUM SOLUTIONS

(513) 461-0901 • P.O. BOX 246 • DAYTON, OHIO 45409

PRICES MAY REFLECT A 3% CASH DISCOUNT MC & VISA, MONEY ORDER, CASHIERS CHECK ACCEPTED. PERSONAL OR COMPANY CHECKS REQUIRE 2-3 WEEKS TO CLEAR. SHIPPING & HANDLING FEE EXTRA OHIO RESIDENTS ADD 6% TAX RESTOCKING FEE OF 20% FOR ALL RETURNED MERCHANDISE.

Drop Your Sox and grab a Fox
Less than an empty MS-DOS Box

Our Fox system is more than the only complete 16-bit, 8088 computer for less than $1,000. The Fox includes more storage, more extras, and more software than systems costing twice as much.

1.6 Megabytes! Dual Drives with 800K storage on each, yet the Fox is nimble enough to read and write to standard 160K, 320K, and 360K formates.

All the Extras that cost extra on other machines are included in our price. You get a full 12", 25x80, display monitor in amber or green, plus RGB color output, a printer port, a better keyboard, and a full 256K of RAM.

Free Software All the software most people will ever need including: MS-DOS 2.11, HAGEN-DOS, DOS Tutor, WordStar 3.3, EasyWriter, Spell, Mail Track, FILEBASE, CalcStar, games, graphics, utilities, and a graphics BASIC.

Strictly speaking the Fox isn't IBM compatible, but will run hundreds of the same programs including dBASE II, Multiplan, and Turbo Pascal. Because the Fox is born on a totally automated assembly line in Japan we can back it with a full one year limited warranty. For a free booklet explaining why the Fox is your best buy call 1-800-FORAFOX and leave your name and address after the beep.

The Fox $995
(Video RAM board to run Lotus 1, 2, 3 & more ..... $159)

Sanyo 555/Fox Extras

360K Drives Actual TEAC 53B drive removed from Sanyo 550 computers-gray faceplate, Sanyo warranty — $98

StarPacks While they last - ReportStar, DataStar, MailMerge, and SpellStar unbundled at a fraction of their prices. — $98

RS-232 Ports Comtel's serial ports for the 550/555 - the best we've found (and we've tried them all). — $69

800 Drive Kits A copy of HAGEN—DOS and two Sanyo 5300B disk drives to give your Sanyo 550/555 over 1.6 Megabytes of storage. — $249

Scottsdale Systems
617 N. Scottsdale Road, Suite B, Scottsdale, Arizona 85257
VISA (602) 941-5856 MasterCard
Call 8-5 Mon.-Fri.
We participate in arbitration for business and customers through the Better Business Bureau of Maricopa County.

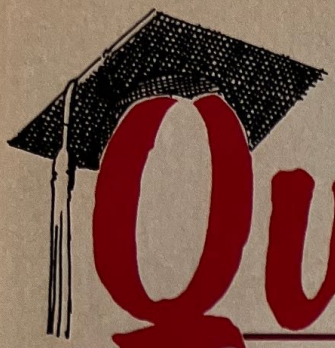
SINCE 1980

TELEMARKETING ONLY: If you plan to stop by please phone ahead. Prices listed are for cash. P.O's from Fortune 1200 companies and universities with good credit add 2% / Mastercard and Visa add 3% / Arizona residents add 6% sales tax / Shipping extra / All items are new with manufacturer's warranty / Returned merchandise subject to 20% restocking fee / Personal or company checks take up to 3 weeks to clear / No COD's or APO's. Prices and specifications subject to change / Product subject to availability. Trademarks: Silver Fox, HAGEN—DOS, and Jackintosh, Scottsdale Systems, Ltd.; Wordstar and CalcStar, Micropro International; MS-DOS, and Multiplan, Microsoft Corporation; FILEBASE, EWDP Software, Inc.; dBASE II, Ashton-Tate: IBM-PC DOS, and IBM-AT. International Business Machines.

Olympia Compact NP
$295

RGB Monitors
14" NEC JC 1460's
Perfect for Sanyos
$298

Create your own educational software with . . .



Quiz Master

Computer literacy is a phrase you hear tossed around everywhere today. Major universities require that entering students purchase a computer of their own. Software manufacturers offer endless lists of programs designed to teach everything from the alphabet to the latest database operating system. Television advertisements tell parents that unless they buy a home computer little Johnnie will grow up with about as much future employment potential as a head of lettuce. Is the role played by computers in education as dramatic as we are led to believe?

I don't think anyone could honestly deny that computers can and do play an extremely important part in education and creative growth. But how is that potential transformed into actual accomplishment? Unless you are a confident programmer, the only recourse has been to purchase "educational software" from a software distributer or computer store. It may be necessary to purchase an entire set of programmed lessons in order to obtain a thorough knowledge of the material being taught. What's more, unless you just happen to be learning the material for self improvement, it's unlikely the format or the majority of the test material will follow your particular course or class outline. Finally, once you've completed all the lessons, what next? Most software packages are expensive and overly "basic" in their approach to the subject. The programs can't be easily altered or updated and eventually they begin to gather dust on your bookshelf or computer desk.

Quiz Master takes a different approach. If you are able to type the BASIC command PRINT, and know what a DATA statement is, you can construct your own educational software to satisfy any age category, difficulty level or subject material. The program contains less than 100 lines but is able to handle almost any type of testing format. The sample questions included in the listing are examples of multiple choice, true-false, mathematical addition, fill in the blank and even a special "audio" quiz question. In addition, *Quiz Master* can be toggled from silent operation to musical cues especially designed for younger computer users. If you are more familiar with BASIC, minor changes in the way new questions are displayed will allow mixing high-resolution graphics from programs similar to *Sketch-It* (SOFT SECTOR, January '85 Page 56) within the testing format. If this is done, identification of individual objects as complex as internal organs of the digestive system or as simple as squares, rectangles and triangles can comprise the test material. *You* decide.

Quiz Master was originally written for my personal use. One requirement I demanded was that questions always be asked in a completely random order. Additionally, if I couldn't remember the answer I wanted to be reminded of it, but then quizzed again before being allowed to quit. I also needed something that would accept any type of question format, even provide graphics if necessary. Most of all, I wanted to be able to come back to the program three years from when it was originally written and still be able to use it without having to spend hours pondering the code. *Quiz Master* accomplishes all this and has helped me learn everything from calculus equations to the operational codes for a CAD/CAM system. With the addition of the musical cues and tunes, even the younger children will find learning entertaining while you find it easy to tailor their lessons to fit their individual needs.

Quiz Master is so easy to use that the hardest part of creating your program will be deciding what the questions are going to be. As an example, suppose you wanted to create a program to teach states and capitals. All you need to do is write your question as a PRINT statement on the appropriate line number:

```
PRINT "What is the capital of
Alaska":GOTO 1000
```

Next stick the GOTO on the end of it and place your answer on a data line at the end of the program:

```
DATA Juneau
```

That's all there is to it! The next question is entered in exactly the same way on the next allowable line number and its respective answer is placed after the word Juneau in the data line. *Quiz Master* does everything else. It will automatically count the number of questions contained in the exam, keep track of which questions have been asked and those which have been answered incorrectly. In addition, it will handle all input and output of responses, grade your exam and critique your performance. It even disables the BREAK key so that once it is running, even the most inexperienced users can be left alone without danger of program interruption.

The program has been organized into labeled modules to make the structure simpler and easier to understand. Multiple LINE statements are used to make the most efficient use of program memory. With a few exceptions, the code should be self explanatory but there are a few things worthy of special mention.

Lines 75 Through 85

Line 75 contains the title of the program. As you create your own quizzes, insert their titles into the place taken up by "Quiz Master Example" in the listing. Line 80 contains the BASIC command CONT N. This disables the BREAK key and makes it impossible to interrupt the operation of the program until it encounters a CONT command at another point in the program (see Line 1205). I would suggest leaving this out until you have debugged your typing and saved a copy to disk. Otherwise, if you become trapped in a loop the only remaining way to exit the program is to re-boot the entire system, thereby destroying all your efforts. Line 85 contains the variable AT TEMPT. This controls the number of times a missed question is repeated before the correct answer is given.

Question Storage

Questions are entered as PRINT statements. The way they are displayed on the screen may be as simple or as complex as you desire. Questions must begin on line numbers in increments of five and end with the statement GOTO 1000. Some

---

(Dan Webber began his association with microcomputing in 1978 and is currently completing a degree in mechanical engineering at the University of Missouri in Rolla, MO.)

By Dan Webber

questions may require only one line. Others, like some of the examples in the listing, may require more than one line. Just make sure that any one question doesn't extend past five program lines or it will interfere with the following question. If involved graphics are required, I suggest branching to a subroutine where there is unlimited programming space and then returning when you are ready to accept user input. Take special care when typing lines 255 and 260. A missing comma or mistyped number in these two lines will cause some unexpected and elusive errors as you run the program. Finally, anytime you create a new program your questions must begin on Line 345 and continue sequentially up to, but not exceeding, Line 920 in increments of five. You cannot skip an expected line number.

Question Answers

Answers, separated by commas, are entered on a data line near the end of the program. If you need to supply an answer which contains a comma as part of the correct response, you must enclose the answer in quotation marks within the data line as follows:

```
DATA Juneau,45,"Rolla, MO",False
```

In this example ROLLA, MO (including the comma) is the correct answer corresponding to the third question in the hypothetical quiz. As previously explained, it is important that the order in which the answers are listed in the DATA statement be identical to that of the questions in the program section. For example, make sure that the third item in the data list corresponds to the third question in the program listing. The program line containing the word END must always be the last data line. If necessary you may change its line number to allow more room for DATA statements, but it *must always be the last data statement contained in the program.* Any DATA statements placed after this line will not be read.

One aspect of *Quiz Master* which may be a benefit or a hindrance depending on your point of view, is the use of the subroutine in Line 1225. Over the years as I used the predecessors of this program I found it annoying to type in a correct response only to have the computer reject my answer because I had miscapitalized or included an extra "space." By channeling both the user input and the correct answer from the data list through subroutine 1225 they are stripped of *any* blank spaces and converted into all uppercase letters. These can then be compared regardless of how the correct answer was typed in. If your program requires a correct answer to be dependent on the use of capitalization or "spaces" it is a simple matter of removing the statement GOSUB 1225 from lines 1005 and 1010. Be advised, however, that if you come back to the quiz three months from now and forget the correct spacing of your answer, your Sanyo will be a very unforgiving taskmaster!

One last item is the use of the BASIC command SWAP in Line 1005. This command isn't documented in the *Sanyo Operator's Guide* supplied with the Sanyo but is much less cumbersome than the old method of ". . . A equals B . . . . B equals C . . . . and finally . . . . C equals A . . . ." It is much faster to say SWAP B,C.

Computers can assist in developing learning and recognition skills and *Quiz Master* will place that power into your own hands. You're no longer limited to purchasing "canned lessons" designed for "mass segments of the population." Given the ability to effortlessly tailor an educational program to suit one's individual needs and pace, the sky's the limit . . . and who knows, maybe not even that.

The listing: QUIZ.BAS

```
5 '  ***************************************************************
1Ø ' * 5/29/85                                                      *
15 ' *                                                              *
2Ø ' *                        QUIZ MASTER                           *
25 ' *                                                              *
3Ø ' *        Enter each quiz question in "PRINT" format on every   *
35 ' *     fifth line beginning on line 345.  Answers are entered   *
4Ø ' *     in identical order in a Data Statement at the end.       *
45 ' *   ------------------------------------------------------     *
5Ø ' *                                                              *
55 ' *     Copyright 1985.                  12Ø6 Maple              *
6Ø ' *                                      Rolla, MO   654Ø1       *
65 ' *     Permission for personal use only.  314-364-34Ø4          *
   ' ***************************************************************
7Ø :
75 TITLE$="Quiz Master Example"
8Ø COLOR 2,Ø:CLS:DEFINT T,D:DIM T(4,11),D(4,11):CONT N
85 ATTEMPT=2:X=315-LEN(TITLE$)*15/2
9Ø SYMBOL (X,2Ø),TITLE$,2,2,3:LOCATE 9,28,Ø:W$=STRING$(6Ø,32)
95 :
1ØØ '---------- LOAD MUSIC DRIVER
1Ø5 FOR A=256 TO 315:READ Z$:POKE A,VAL("&H"+Z$):NEXT A
11Ø DATA EB,2,Ø,Ø,FA,8B,EC,1E,C5,5E,8,8B,F,C5,5E,4,8B,17,E,1F,2E,89,E,2,1,B8,35
115 DATA Ø,34,8,E6,3A,FE,CC,75,3,4A,74,9,E2,F7,2E,8B,E,2,1,EB,EC,34,8,3C,35,75
12Ø DATA 2,E6,3A,1F,CA,8,Ø
125 :
13Ø '---------- LOAD TUNES INTO ARRAY
```

```
135 FOR A=1 TO 4:FOR X=1 TO 11:READ T(A,X),D(A,X):NEXT X:NEXT A
14Ø DATA 344,19Ø,344,14Ø,344,7Ø,344,12Ø,29Ø,14Ø,3Ø8,7Ø,3Ø8,9Ø,344,5Ø,344,7Ø,36Ø
145 DATA 8Ø,344,2ØØ
15Ø DATA 81,2,72,9Ø,6Ø,1ØØ,72,4Ø,67,7Ø,6Ø,21Ø,72,9Ø,6Ø,1ØØ,72,4Ø,67,7Ø,6Ø,21Ø
155 DATA 1Ø8,6Ø,121,4Ø,112,5Ø,1Ø8,8Ø,144,3Ø,136,5Ø,128,4Ø,162,5Ø,1Ø8,3Ø,81,1ØØ
16Ø DATA 162,2ØØ
165 DATA 1Ø8,3Ø,81,2Ø,64,4Ø,53,6Ø,64,1,64,13Ø,1Ø8,3Ø,81,2Ø,64,4Ø,53,6Ø,64,13Ø
17Ø :
175 '---------- COUNT # QUESTIONS / READ ANSWERS INTO ARRAY
18Ø READ A$:IF A$="END" THEN 185 ELSE N=N+1:GOTO 18Ø
185 RESTORE:FOR A=1 TO 148:READ Z$:NEXT A:DIM ANSWER$(N),STATUS(N)
19Ø PRINT"# of Questions:";:FOR A=1 TO N:PRINT TAB(43)A;:READ ANSWER$(A):NEXT A
195 :
2ØØ :
2Ø5 CLS:INPUT"What is your name";NAM$:CLS
21Ø INPUT"Do you want to disable the sound function [Y/N]: ";SOND$
215 IF SOND$="Y" OR SOND$="y" THEN SOND=Ø ELSE SOND=1
22Ø :
225 '---------- BEGIN MAIN PROGRAM LOOPING
23Ø COLOR 2,Ø:CLS:PRINT "Serching....":IF ASKED=N THEN 1Ø95
235 GUESS=Ø:RANDOMIZE VAL(MID$(TIME$,4,2)+RIGHT$(TIME$,2))
24Ø QUESTION=ABS(INT(RND*(1-(N+1)))):IF STATUS(QUESTION)<>Ø THEN 235
245 CLS:LOCATE 8,1Ø,Ø:ASKED=ASKED+1:SYMBOL(1,1),"Question #"+STR$(ASKED),1,2,3
25Ø :
255 ON QUESTION GOTO 345,35Ø,355,36Ø,365,37Ø,375,38Ø,385,39Ø,395,4ØØ,4Ø5,41Ø,415
,42Ø,425,43Ø,435,44Ø,445,45Ø,455,46Ø,465,47Ø,475,48Ø,485,49Ø,495,5ØØ,5Ø5,51Ø,515
,52Ø,525,53Ø,535,54Ø,545,55Ø,555,56Ø,565,57Ø,575,58Ø,585,59Ø,595,6ØØ,6Ø5,61Ø,615
,62Ø,625,63Ø
26Ø ON QUESTION-58 GOTO 635,64Ø,645,65Ø,655,66Ø,665,67Ø,675,68Ø,685,69Ø,695,7ØØ,
7Ø5,71Ø,715,72Ø,725,73Ø,735,74Ø,745,75Ø,755,76Ø,765,77Ø,775,78Ø,785,79Ø,795,8ØØ,
8Ø5,81Ø,815,82Ø,825,83Ø,835,84Ø,845,85Ø,855,86Ø,865,87Ø,875,88Ø,885,89Ø,895,9ØØ,
9Ø5,91Ø,915,92Ø

3ØØ :
3Ø5 :
31Ø '_______ Question storage (end every question with "GOTO 1ØØØ")_______
315 :
345 PRINT "What is your Sanyo's best friend ?":GOTO 1ØØØ
35Ø PRINT "Jefferson City is the Capital of which state:":PRINT
351   PRINT TAB(2Ø)"1. Iowa":PRINT TAB(2Ø)"2. North Dakota"
352   PRINT TAB(2Ø)"3. Missouri":PRINT TAB(2Ø)"4. Delaware":GOTO 1ØØØ
355 PRINT TAB(3Ø)"   7":PRINT TAB(3Ø)"+ 19":PRINT TAB(3Ø)"-----":GOTO 1ØØØ
36Ø PRINT "True or False:":LOCATE 13,2Ø,Ø
361   PRINT "  Manzini is the capital of Swaziland, Africa":GOTO 1ØØØ
365 PRINT"In September of 1973 the South American country of _____"
366   PRINT TAB(8)"experienced a military coup disposing the freely elected"
367   PRINT TAB(8)"Socialist president Salvador Allende.":GOTO 1ØØØ
37Ø PRINT "Who was the composer of this music:":PRINT:PRINT TAB(3Ø)"1. Mozart"
371   PRINT TAB(3Ø)"2. Beethoven":PRINT TAB(3Ø)"3. Chopin":GOSUB 125Ø:TA(1)=121
372   TA(2)=121:TA(3)=121:TA(4)=151:TA(5)=136:TA(6)=136:TA(7)=136:TA(8)=162
373   DA(1)=6Ø:DA(2)=5Ø:DA(3)=6Ø:DA(4)=35Ø:DA(5)=6Ø:DA(6)=5Ø:DA(7)=6Ø:DA(8)=35Ø
374   FOR A=1 TO 8:CALL 256,TA(A),DA(A):NEXT A:GOTO 1ØØØ
375 PRINT "What is the capital of Alaska":GOTO 1ØØØ
985 '_____
99Ø :
995 '---------- CHECK FOR CORRECT ANSWER / CONTINUE OR END PROGRAM
1ØØØ IF GUESS=ATTEMPT THEN 1Ø65 ELSE LOCATE 2Ø,1Ø:PRINT "Your answer ";NAM$,
1Ø05 LINE INPUT GUESS$:A$=GUESS$:GOSUB 1225:SWAP GUESS$,B$
1Ø1Ø A$=ANSWER$(QUESTION):GOSUB 1225:IF B$<>GUESS$ THEN 1Ø35
```

```
1Ø15 CLS:T=4:SYMBOL(155,9Ø),CHR$(1)+" CORRECT !",4,6,3
1Ø2Ø IF SOND=Ø THEN GOSUB 125Ø:ELSE GOSUB 127Ø
1Ø25 IF GUESS>Ø THEN 23Ø:ELSE STATUS(QUESTION)=1:GOTO 23Ø
1Ø3Ø :
1Ø35 GUESS=GUESS+1:STATUS(QUESTION)=-1:GOSUB 126Ø
1Ø4Ø IF GUESS>1 THEN 1Ø45 ELSE IC=IC+1
1Ø45 PRINT "Sorry ";NAM$;:IF GUESS=ATTEMPT THEN 1Ø5Ø ELSE PRINT".  Try again!";
1Ø5Ø IF SOND=Ø THEN GOSUB 125Ø:GOSUB 126Ø:GOTO 1ØØØ:ELSE D=15
1Ø55 FOR T=376 TO 7ØØ STEP 12:CALL 256,T,D:NEXT T:GOSUB 126Ø:GOTO 1ØØØ
1Ø6Ø :
1Ø65 PRINT "The correct answer is ";:COLOR 3:PRINT ANSWER$(QUESTION):COLOR 2
1Ø7Ø T=3:GOSUB 127Ø:LOCATE 22,1Ø,Ø
1Ø75 PRINT "Remember this ";NAM$;", you will be asked again."
1Ø8Ø PRINT TAB(18)"<Press any key to continue>";
1Ø85 I$=INPUT$(1):CLS:STATUS(QUESTION)=-1:GOTO 23Ø
1Ø9Ø :
1Ø95 CLS:PRINT " The quiz is now complete.  Out of";N;" questions you answered"
11ØØ W=N-IC:P=INT(1ØØ*W/N)
11Ø5 PRINT W;" correctly.  This is a score of";P;" %":LOCATE 1Ø,3,Ø
111Ø COLOR 3:ON P/1Ø GOTO 1115,112Ø,1125,113Ø,1135,114Ø,1145,115Ø,1155,116Ø
1115 PRINT "Horrible!  Absolutely HORRIBLE!!!":T=1:GOTO 1165
112Ø PRINT "This is extremely bad !!! Go and Study!!!":T=1:GOTO 1165
1125 PRINT "Very poor performance ";NAM$;"....":T=1:GOTO 1165
113Ø PRINT NAM$;", you failed this exam...":T=1:GOTO 1165
1135 PRINT "You got half right ";NAM$;". Don't give up!":T=1:GOTO 1165
114Ø PRINT "Not too bad... try again":T=1:GOTO 1165
1145 PRINT "This is average.  I know you can do better!":T=2:GOTO 1165
115Ø PRINT "Superior performance.  Good work!!!":T=2:GOTO 1165
1155 PRINT "Excellent!! You almost made a perfect score!!":T=2:GOTO 1165
116Ø PRINT "AWESOME!! A perfect Score !!!!!!!!":T=2
1165 GOSUB 127Ø:LOCATE 24,1Ø,Ø:COLOR 1,3
117Ø IF P=1ØØ THEN 119Ø
1175 PRINT " Press any key to redo those that you missed ";:I$=INPUT$(1)
118Ø FOR A=1 TO N:IF STATUS(A)=-1 THEN STATUS(A)=Ø:NEXT A:ELSE NEXT A
1185 ASKED=ASKED-IC:IC=Ø:GOTO 23Ø
119Ø INPUT " Would you like me to run the quiz again";I$
1195 IF I$="Y" OR I$="y" THEN RUN ELSE CLS
12ØØ SYMBOL (155,9Ø),"Bye "+NAM$,1,3,Ø:GOSUB 125Ø:GOSUB 125Ø
12Ø5 COLOR 2,Ø:CLS:CONT:END
121Ø :
1215 '_____ Subroutine Storage Area _____
122Ø :
1225 B$="":FOR B=1 TO LEN(A$):C=ASC(MID$(A$,B,1))
123Ø      IF C=32 THEN 124Ø ELSE IF C>96 AND C<123 THEN C=C-32
1235      B$=B$+CHR$(C)
124Ø    NEXT B:RETURN
1245 :
125Ø FOR T=1 TO 1ØØØ:NEXT T:RETURN
1255 :
126Ø LOCATE 2Ø,1Ø:PRINT W$;:LOCATE 2Ø,1Ø:RETURN
1265 :
127Ø IF SOND=Ø THEN RETURN
1275 FOR A=1 TO 11:CALL 256,T(T,A),D(T,A):NEXT A:RETURN
128Ø :
1285 '_____ Answer Storage (sequential) _____
129Ø :
1295 DATA Soft Sector,3,26,False,CHILE,2,Juneau
13ØØ :
13Ø5 DATA END:' ---- Do not REMOVE or Alter this line ------!!!!!
```

INPUT OUTPUT

TIM PURVES
Soft Sector Contributing Editor

Q. *Using the* Flight Simulator *patch, I find that the joystick doesn't work. Do you have a fix for this?*

J. Lindberg
Diamond Bar, CA

A. One of the users on my BBS has enhanced my patch to include sound and joystick support. I am trying to talk him into writing an article about it.

Q. *If I plug in an 8088-2, will this make my Sanyo run at eight megahertz?*

Dale McKenna
Lompoc, CA

A. No, plugging an 8088-2 into your machine will do nothing but cost you money. To increase the speed of your Sanyo you would have to add an 8088-2 and *modify* the motherboard to run at a higher clock speed. One problem with increasing the clock speed of the motherboard is getting it to run reliably. Since the Sanyo was designed to run at 3.58 Mhz, some of the "chips" installed are only rated at 4 Mhz. To reliably speed up the Sanyo would require many chip changes and modifications to the motherboard.

Q. *I have found that the* TIME$ *function in* BASIC *is about 10 percent fast. Can I fix this?*

Michael Braslavsky
Chicago, IL

A. The Sanyo clock runs slightly fast to compensate for the time the clock is turned off during disk I/O. You could re-program the timer or add a real time clock such as Rocky Mountain Micro's or Tampa Bay Digital's clock interface board.

(Tim Purves is an expert on the Sanyo MBC-550/555 series computers and is an experienced programmer in assembly code, PASCAL, C and BASIC. He is available to answer any technical questions that the readers of SOFT SECTOR might have. All questions should be addressed to SOFT SECTOR, P.O. Box 385, Prospect, Ky. 40059.)

Q. *According to the documentation that came with my DeSmet compiler, the Sanyo 555 is "ROM compatible" with the IBM PC. What does this mean? Also, how can I do a* CLS *in C?*

Pat Smit
College Park, MD

A. The term ROM compatible simply implies that if a program makes use of the software interrupt functions, the program should run on the IBM or the Sanyo or any other BIOS ROM-compatible machines. Unfortunately, the ROM routines in the IBM are slow and cumbersome, so many programmers "write around" these routines and go directly to the hardware. To issue a CLS in DeSmet C you could include PCIO or enter this short little function in your program.

```
setmode(mode) /* mode is 2 for BW and 3 for COLOR */
{
int mode;
#asm
mov al,[bp+4]        ; get passed parm
sub ah,ah            ; function 0
int 10h              ; the video set mode interrupt
#
}
locate(row,col)      /* another useful function */
int row,col;
{
#asm
mov dh,[bp+4]        ; row parm
mov dl,[bp+6]        ; column parm
xor  bx,bx           ; page zero
mov ah,2
int   10h
#
}
```

Typical use:

```
#include "stdio.h"
#define cls( ) setmode(2) /* defines cls to setmode(2) {BW cl}
*/

main(argc,argv)
int argc;
char **argv;
{
 int row,col;
 cls( );   /* screen cleared */
 for(row=col=0,row<25;) {
  locate(row,col);
```

```
  printf("row=%d, col=%d",row++,col++);
 }
}
```

Q. *I have a Novation J-CAT modem. I can't make it function on my Sanyo MBC-550 computer. Do you have any ideas?*

Steven Capper
LaCrosse, WI

A. The reason the J-CAT modem doesn't work with the Sanyo is the same reason it doesn't work with many other computers. The J-CAT has a non-standard interface. With a true RS-232 interface, the signals must range from +3 to +12 for a high signal and -3 and -12 for a low signal, with the range between +3 and -3 as undefined. The J-CAT outputs a signal from zero to +5 or a TTL-compatible signal. Basically, the Sanyo never sees the low signal. One could build an interface using a 1488 and a 1489 to convert the TTL signals to the required RS-232 signals for the Sanyo.

Q. *I would like to know the calling parameters for the RS-232 software Interrupt 14h.*

Dale Ziebarth
Eagan, MN

A. Software Interrupt 14h is used to communicate with the RS-232 port on the Sanyo. This interrupt is, for the most part, compatible with the IBM. There are four functions available for controlling the RS-232.

Function 0 Reset RS-232 parameters.
Entry:
  ah = 0
  al = bit 7 6 5 Baud Rate | 4 3 Parity | 2 Stop Bits | 1 0 Word Length

Baud Rate	Parity	Stop Bits	Word Length
000 = 110	00 = none	0 = 1	00 = 5 bits
001 = 150	01 = odd	1 = 2	01 = 6 bits
010 = 300	11 = even		10 = 7 bits
011 = 600			11 = 8 bits
100 = 1200			
101 = 2400			
110 = 4800			
111 = 9600			

  dx = Port to use (0-3) on IBM Ignored on Sanyo

Exit:
  ax = line status { see function 3 }

Function 1 Transmit Character
Entry:
  ah = 1
  al = Character to send
  dx = Port to use (0-3) on IBM Ignored on Sanyo

Exit:
  al = Character sent
  ah = line status (bit 7 set means timeout occurred)

Function 2 Receive Character
Entry:
  ah = 2
  dx = Port to use (0-3) on IBM Ignored on Sanyo

A BRIGHTER IDEA

Purchasing your SANYO was a bright idea. Now there's an even brighter one—3 software packages designed to unleash the productivity power in your computer.

***HOME MANAGEMENT 1** - $59.95
Budget - versatile checkbook and personal finances manager
Typewriter - turns your SANYO into a memory typewriter
Home Forms - produces forms for keeping track of weight and health, car expenses and mileage, phone calls, things to do
NumCalc - 100 digit precision calculator
Projects - easy to use home projects management system

***BASIC PROGRAMMER'S TOOLKIT** - $39.95
5 unbeatable tools for writing, editing and compiling BASIC programs, PLUS notes on differences between IBM and SANYO BASIC and patches for the IBM compiler

***UTILITIES 1.25** and **2.11** - $29.95 each
9 programs to free your valuable time, make file handling easier and more productive. Specify DOS 1.25 or 2.11

ALSO—We have fantastic games such as Startrek, Blackjack, Yahtzee, Entrepreneur and many more, all written just for your SANYO.

Call or write to order or for free catalog

MVP SOFTWARE
1035 Dallas SE
Grand Rapids, MI 49507
(616) 245-8376

MC/VISA accepted at no extra charge
Add $3.00 shipping per order
Michigan residents add 6% sales tax
DEALER INQUIRIES INVITED

SANYO

Rocky Mountain Micro

P.O. Box 1693, Sandy, Utah 84091 (801) 572-6272

Memory Expansion for your Sanyo MBC 550 or 555

- 960K Memory card with Real Time Clock
- 640K Memory Card with Real Time Clock for use with the Video Ram Board
- All memory products come with Ram Disk and Print Spooler by Tim Purves and Level IV Products
- RS232 Boards
- Clock Calender Card (Correct time and date even after boot up).
- AB Switches

CHECK OUR COMPETITIVE PRICES

Dealer Inquires Welcome
Six month warranty on Rocky Mountain Products

Exit:
al = Character received
ah = Line status (bit 7 set if no character read in)

Function 3 Get Line Status
Entry:
ah = 3
dx = Port to use (0-3) on IBM ignored on Sanyo

Exit:
al = modem status (bit set if true)
bit 7 = Carrier Detect *
bit 6 = Ring Indicator *
bit 5 = Data Set Ready
bit 4 = Clear to send *
bit 3 = Delta Carrier Detect *
bit 2 = Trailing Ring Indicator *
bit 1 = Delta Data Set Ready *
bit 0 = Delta Clear to Send *

ah = RS-232 Status
bit 7 = Timeout Occurred
bit 6 = Xmitter Shift Register Empty *
bit 5 = Xmitter Hold Register Empty
bit 4 = Break Detected
bit 3 = Framing Error
bit 2 = Parity Error
bit 1 = Overrun Error
bit 0 = Data Ready

* denotes always False (=0) on the Sanyo

Helpful Hint . . .

Conversion Charts

If you are using Michael J. Himowitz's great program, "Sanyo Bigprint" (July '85), or otherwise need to refer to the ASCII equivalent of characters, it is inconvenient to keep digging out the manuals and finding the conversion charts. By using one of the following BASIC programs, you can have a compact slip of paper with the ASCII numbers and characters taped to the front of your printer or some other handy location.

For a seven-row listing of the characters corresponding to ASCII numbers 32 through 126, use the following:

```
10 FOR A=32 TO 126
20 LPRINT A;CHR$(A);
30 NEXT
```

If you have a dot matrix printer you may want to substitute FOR A=1 TO 255 for Line 10, which will give a listing of 18 rows.

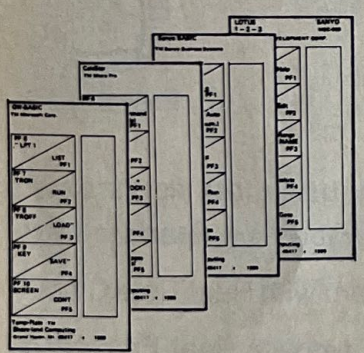
For a longer, but neater list of 19 rows, use the following:

```
10 FOR A=32 TO 126
20 LPRINT A;CHR$(A),
30 NEXT
```

The difference between this program and the first is that there is a comma at the end of Line 20.

Bruce A. White
Mt. Rainier, MD

TEMP · PLATES™



SANYO
550/555
FUNCTION
KEY TEMPLATES

Temp · Plates™ Pre-printed for:

LOTUS 1-2-3 ®	DBASE II®
WORDSTAR ®	EASY WRITER I ®
CALC STAR ®	SANYO® BASIC
PC-WRITE ®	GW-BASIC ®
PC-FILE III ®	MS-DOS® 2.11

PLUS 2 " FILL IN YOUR OWN" PLATES
VELCRO MOUNTS AND FUNCTION KEY INFO INCLUDED

9.95 INCLUDES SHIPPING

SHORELAND COMPUTING
711 CLINTON ST. GRAND HAVEN, MI. 49417

TERMS: CASH, CHECK, OR STAMPS. NO VISA/MC OR COD.
MICHIGAN RESIDENTS ADD 4% SALES TAX
DEALER, DISTRIBUTOR, USER, GROUP INQUIRIES INVITED

768K ** THE MISSING LINK ** 768K
EXPANSION * MEMORY * CLOCK * SOFT VIDEO
First True Multi-Function Board
Includes free RAM disk and SPOOLER.
Run Lotus without the video board.

UPGRADE 256K TO 768K — COMPLETLY PLUGIN — USES 256K RAMS
* MAINTAINS EXPANSION BUS WITH **TWO 62 PIN** EXPANSION PORTS
* BUILT-IN REAL TIME CLOCK/CALENDAR (BATTERY BACKUP)
* EXPANDED INTERRUPT STRUCTURE TO ACCOMODATE ADDITIONAL DEVICES
* SOFT VIDEO OPTION — UNIQUE COMBINATION OF SOFTWARE AND HARDWARE ALLOWS ADDED IBM COMPATIBILITY — SIMILIAR TO SANYO VIDEO BD. AT NO EXTRA COST
* COMPLETE WITH INSTALLATION SOFTWARE
* **ALL OF WHICH ARE STANDARD FEATURES OF THE "MISSING LINK"**

PLUG-IN RAM BOARDS		RETAIL	SALE
256K-768K MISSING LINK (NO MEMORY)	#550-768	$259.95	$199.95
256K-768K MISSING LINK (256K MEMORY)	#550-7688	$339.95	$239.95
256K-768K MISSING LINK (512K MEMORY)	#550-76816	$419.95	$289.95

****CALL FOR LATEST MEMORY CHIP PRICES****

M-DISK, PRINT SPOOLER	$34.95
4164-150 NS CHIPS	$CALL
256K CHIPS 120-150NS	$CALL

TAMPA-BAY DIGITAL
(813) 527-7145
5620 - 4th Street North
St. Petersburg, Fl. 33703
VISA/MASTERCARD ACCEPTED-
PRICES REFLECT 3% CASH DISCOUNT
24 HR. MODEM (813) 526-1644

Got a lot of envelopes to mail?
Address the problem with . . .

Envelope Addresser

By Wayne R. Sipler

Would you like to have neatly typed envelopes but lack a typewriter? If so, this program is for you. It will allow you to use your computer and printer to do the addressing and will also let you correct your mistakes.

Once you have the program entered into your computer, you must change the DATA statements in lines 110 through 150. Just enter your own return address information by following the sample format provided in the program ("name," "street address," "city, state and zip"). If you don't need four return addresses, set the unused ones to NULL strings ("","","",""). You must have four sets of data for this program to function properly. The character string INITPRINT$ in Line 180 is used to initialize your printer to a specified condition. The current value sets an Epson printer "paper out" sense to "OFF." You should change this to meet the needs of your printer (letter quality, double-strike, etc).

The string in Line 190, RESPRINT$ performs a printer reset after printing. Also, change the values of this string as necessary. If you do not need these functions, you may disregard them. They are only sent if the printer initialize prompt is answered "Yes."

The colors used in this program were set for a Sanyo CRT-70 color monitor. If you are using a monochrome monitor or have a different color preference, you can change the colors by setting the variables KOLOR1,KOLOR2,KOLOR3 and KOLORB in Line 180 to your own values. Refer to the variable list to determine how each is used.

The program is self-explanatory. It is designed to be used with envelope sizes six and nine. I use an Epson FX-80 printer and it is possible to use the more common number 10 envelopes by moving the pin-feed mechanisms to their maximum opening, but the return address will be printed farther from the left margin than is desirable. If you don't have friction feed on your printer, you will have to purchase your envelopes on carriers or try taping them to pin feed paper.

If you wish to better understand the way this program operates or wish to modify it, please refer to the accompanying program description and variable list.

(Wayne Sipler, a chief nuclear medicine technologist, has worked with computers since the early 1970s. He has owned a Sanyo 555-2 since July 1984. Wayne has written many programs for image data collection and analysis. He may be contacted at Prospect Hill Apts. #1-6A, Flemington, NJ 08822; 201-782-4380.)

Variable List

N$	Return address name
A$	Return street address
T$	Return City, State and ZIP
N1$	Addressee
A1$	Addressee street address Line 1
A2$	Addressee street address Line 2
T1$	Addressee City
S$	Addressee State
C$	Addressee ZIP Code
A3$	Attention to:
KOLOR1	Normal text color
KOLOR2	Highlight color
KOLOR3	Opening screen color
KOLORB	Background color (normally zero)
INITPRINT$	Printer initialize string
RESPRINT$	Printer reset string
PRINTER$	Printer initialization needed (yes/no)
BLANK$	String consisting of 79 spaces
NUMBER$	Return address selection
E$	Envelope size
D	Number of return addresses
X,C	Tab values
D$,N,Q$,Q,I	Transient variables

Program Description

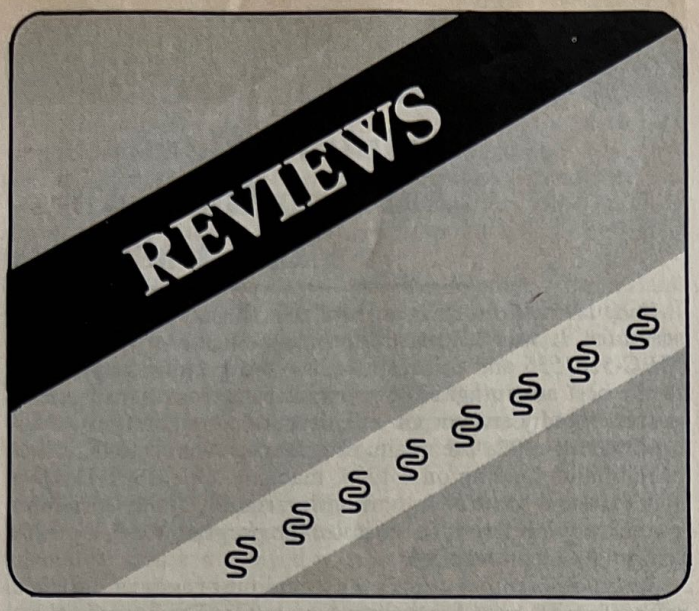
10 to 90	Header
100	Set up error trap
110	Number of return addresses
120 to 150	DATA Statements for return addresses
180 to 190	Printer initialize and de-initialize strings
200	Initialize variables
210 to 220	Create a blank line 79 characters long
230	Restart point
240 to 310	Opening screen
320 to 340	Set up return address array
350 to 410	Format screen for return address selection
420 to 440	Make return address selection and check for proper range
450	Set return address variables
460 to 600	Input Address information
610 to 620	Draw envelope on screen
630	Make stamp
640 to 670	Put return address on envelope
680 to 720	Put address on the envelope
730 to 750	See if editing is needed
760 to 860	Set up edit screen
870 to 890	Prompt for number to change and check range of answer
900 to 920	Go to proper line for edit
930 to 1030	Make changes to your selection
1040 to 1070	Select and set proper tabs for envelope size
1080	Allow sending control codes to printer
1090 to 1120	Check printer ready before starting to print
1130	Send printer control code if PRINTER$=YES
1140 to 1240	Print envelope
1250	Send printer reset code if PRINTER$=YES
1260 to 1350	Set up exit screen selections
1360 to 1410	Make selection
1420	Traps non-numeric error in Line 860 and restores the proper screen colors and prints the error number and line for any other error

The listing: ENVELOPE.BAS

```
1Ø '<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<*>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
                                                                >>>>>>>
2Ø '<<<<<<<
3Ø '<<<<<<< E N V E L O P E    A D D R E S S I N G    P R O G R A M >>>>>>>
4Ø '<<<<<<<                                                     >>>>>>>
5Ø '<<<<<<<          written by Wayne R. Sipler   1/12/85       >>>>>>>
6Ø '<<<<<<<                                                     >>>>>>>
7Ø '<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<*>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
8Ø '
9Ø '
1ØØ ON ERROR GOTO 142Ø
11Ø D=4:REM **** NUMBER OF RETURN ADDRESSES ****
12Ø DATA "His Name","ØØ Some Street","Anytown,ZZ 99999"
13Ø DATA "Her Name","ØØ Some Street","Anytown,ZZ 99999"
14Ø DATA "His and Her Name"," ØØ Some Street","Anytown,ZZ 99999"
15Ø DATA "Their Business Address"," 123 Someother Street","   Anytown,ZZ 99999"
16Ø '
17Ø '
18Ø INITPRINT$=CHR$(27)+"8"+CHR$(27)+"O"
19Ø RESPRINT$=CHR$(27)+"@"
2ØØ N$="":A$="":T$="":A1$="":A2$="":A3$="":S$="":C$="":N1$="":T1$="":Q$="":E$=""
:KOLOR1=3:KOLOR2=7:KOLOR3=4:KOLORB=Ø
21Ø DIM BLANK$(8Ø)
22Ø BLANK$=STRING$(79," ")
23Ø RESTORE
24Ø COLOR KOLOR1,KOLORB:CLS
25Ø SYMBOL(12Ø,4Ø),"ENVELOPE",6,2,KOLOR3
26Ø SYMBOL(3Ø5,7Ø),"AN",1,2,KOLOR3
27Ø SYMBOL(9Ø,1ØØ),"ENVELOPE ADDRESSING PROGRAM for SANYO MBC 55Ø COMPUTERS",1,2
,KOLOR3
28Ø SYMBOL(24Ø,13Ø),"by  Wayne R. Sipler",1,1,KOLOR3
29Ø LINE(Ø,Ø)-(639,18Ø),KOLOR2,B
3ØØ LOCATE 24,1:PRINT "Press any key to continue ";
31Ø D$=INPUT$(1):
32Ø FOR I=1 TO D
33Ø READ N$(I),A$(I),T$(I)
34Ø NEXT
35Ø CLS:SYMBOL(1ØØ,1Ø),"RETURN ADDRESS SELECTIONS",2,1,KOLOR2:LOCATE 8,1
36Ø FOR I=1 TO D STEP 2
37Ø COLOR KOLORB,KOLOR2:PRINT " ";RIGHT$(STR$(I),1);".";:COLOR KOLOR1,KOLORB:PRI
NT TAB(5);N$(I);TAB(4Ø);:COLOR KOLORB,KOLOR2:PRINT " ";RIGHT$(STR$(I+1),1);".";:
COLOR KOLOR1,KOLORB:PRINT TAB(45);N$(I+1)
38Ø PRINT TAB(5);A$(I);TAB(45);A$(I+1)
39Ø PRINT TAB(5);T$(I);TAB(45);T$(I+1)
4ØØ PRINT:PRINT
41Ø NEXT
42Ø LOCATE 24,1:PRINT "Select the number of the return address to use (press ret
urn key for none): ";
43Ø NUMBER$=INPUT$(1):IF NUMBER$=CHR$(13) THEN 46Ø
44Ø N=ASC(NUMBER$)-48:IF N<1 OR N>D THEN 35Ø
45Ø N$=N$(N):A$=A$(N):T$=T$(N)
46Ø CLS:X=25
47Ø SYMBOL(12Ø,1Ø),"ENTER ADDRESS INFORMATION",2,1,KOLOR2
48Ø LOCATE 6,1
49Ø COLOR KOLORB,KOLOR1:PRINT " Name or Company name: ";TAB(X);:COLOR KOLOR2,KOL
ORB:LINE INPUT "",N1$
5ØØ PRINT
51Ø COLOR KOLORB,KOLOR1:PRINT " Address line 1: ";TAB(X);:COLOR KOLOR2,KOLORB:LI
NE INPUT "",A1$
```

```
52Ø PRINT
53Ø COLOR KOLORB,KOLOR1:PRINT " Address line 2: ";TAB(X);:COLOR KOLOR2,KOLORB:LI
NE INPUT "",A2$
54Ø PRINT
55Ø IF A2$="" THEN LOCATE CSRLIN-2,1:PRINT BLANK$;CHR$(13);
56Ø COLOR KOLORB,KOLOR1:PRINT " City or Town: ";TAB(X);:COLOR KOLOR2,KOLORB:LINE
 INPUT; "",T1$
57Ø COLOR KOLORB,KOLOR1:PRINT TAB(POS+3);" State: ";:COLOR KOLOR2,KOLORB:PRINT "
 ";:LINE INPUT; "",S$
58Ø COLOR KOLORB,KOLOR1:PRINT TAB(POS+3);" Zip code: ";:COLOR KOLOR2,KOLORB:PRIN
T " ";:INPUT "",C$
59Ø PRINT:PRINT
6ØØ COLOR KOLORB,KOLOR1:PRINT " Attention To: ";TAB(X);:COLOR KOLOR2,KOLORB:LINE
 INPUT "",A3$
61Ø CLS
62Ø LINE(15,39)-(619,16Ø),KOLOR2,BF
63Ø LINE(58Ø,42)-(612,68),KOLOR1,BF:CIRCLE(596,55),14,,,.8,KOLOR2:SYMBOL(582,45)
,CHR$(4),4,3,KOLOR3:SYMBOL(586,52),"22"+CHR$(155),1,1,KOLORB
64Ø COLOR KOLORB,KOLOR2
65Ø LOCATE 6,3:PRINT N$
66Ø LOCATE 7,3:PRINT A$
67Ø LOCATE 8,3:PRINT T$
68Ø LOCATE 12,X:PRINT N1$
69Ø LOCATE 13,X:PRINT A1$
7ØØ LOCATE 14,X:IF A2$<>"" THEN PRINT A2$
71Ø LOCATE CSRLIN,X:PRINT T1$;",";S$;" ";C$
72Ø IF A3$<>"" THEN LOCATE 2Ø,3:PRINT "ATTENTION: ";A3$
73Ø COLOR KOLOR1,KOLORB
74Ø LOCATE 24,3:PRINT "Is this correct? ";:D$=INPUT$(1)
75Ø IF D$="Y" OR D$="y" THEN GOTO 1Ø4Ø
76Ø CLS:COLOR KOLOR2,KOLORB
77Ø LOCATE 1,1:PRINT " 1. ";:COLOR KOLORB,KOLOR1:PRINT " Return name - ";:COLOR
KOLOR2,KOLORB:PRINT TAB(36);N$
78Ø LOCATE 3,1:PRINT " 2. ";:COLOR KOLORB,KOLOR1:PRINT " Return address - ";:COL
OR KOLOR2,KOLORB:PRINT TAB(36);A$
79Ø LOCATE 5,1:PRINT " 3. ";:COLOR KOLORB,KOLOR1:PRINT " Return city, state and
zip - ";:COLOR KOLOR2,KOLORB:PRINT TAB(36);T$
8ØØ LOCATE 8,1:PRINT " 4. ";:COLOR KOLORB,KOLOR1:PRINT " Addressee - ";:COLOR KO
LOR2,KOLORB:PRINT TAB(36);N1$
81Ø LOCATE 1Ø,1:PRINT " 5. ";:COLOR KOLORB,KOLOR1:PRINT " Address line #1 - ";:C
OLOR KOLOR2,KOLORB:PRINT TAB(36);A1$
82Ø LOCATE 12,1:PRINT " 6. ";:COLOR KOLORB,KOLOR1:PRINT " Address line #2 - ";:C
OLOR KOLOR2,KOLORB:PRINT TAB(36);A2$
83Ø LOCATE 14,1:PRINT " 7. ";:COLOR KOLORB,KOLOR1:PRINT " City or town - ";:COLO
R KOLOR2,KOLORB:PRINT TAB(36);T1$
84Ø LOCATE 16,1:PRINT " 8. ";:COLOR KOLORB,KOLOR1:PRINT " State - ";:COLOR KOLOR
2,KOLORB:PRINT TAB(36);S$
85Ø LOCATE 18,1:PRINT " 9. ";:COLOR KOLORB,KOLOR1:PRINT " Zip code - ";:COLOR KO
LOR2,KOLORB:PRINT TAB(36);C$
86Ø LOCATE 21,1:PRINT "1Ø. ";:COLOR KOLORB,KOLOR1:PRINT " Attention to: - ";:COL
OR KOLOR2,KOLORB:PRINT TAB(36);A3$
87Ø LOCATE 24,1:PRINT BLANK$;
88Ø COLOR KOLOR1,KOLORB:LOCATE 24,1:PRINT "Number of item to change ( Return to
exit) : ";:COLOR KOLOR2,KOLORB:INPUT"",Q$:IF Q$="" THEN 61Ø ELSE Q=VAL(Q$)
89Ø IF Q<1 OR Q>1Ø THEN 87Ø
9ØØ POSITION=VAL(MID$("Ø1Ø3Ø5Ø81Ø1214161821",Q*2-1,2))
91Ø LOCATE 24,1:PRINT BLANK$;:LOCATE 24,6:COLOR KOLORB,KOLOR1:PRINT "
Enter changes - Press Return Key when finished          ";:COLOR KOLOR2,KOLORB
92Ø LOCATE POSITION,36:PRINT LEFT$(BLANK$,43);:LOCATE POSITION,36
```

```
93Ø ON Q GOTO 94Ø,95Ø,96Ø,97Ø,98Ø,99Ø,1ØØØ,1Ø1Ø,1Ø2Ø,1Ø3Ø
94Ø LINE INPUT N$:GOTO 87Ø
95Ø LINE INPUT A$:GOTO 87Ø
96Ø LINE INPUT T$:GOTO 87Ø
97Ø LINE INPUT N1$:GOTO 87Ø
98Ø LINE INPUT A1$:GOTO 87Ø
99Ø LINE INPUT A2$:GOTO 87Ø
1ØØØ LINE INPUT T1$:GOTO 87Ø
1Ø1Ø LINE INPUT S$:GOTO 87Ø
1Ø2Ø INPUT "",C$:GOTO 87Ø
1Ø3Ø LINE INPUT A3$:GOTO 87Ø
1Ø4Ø E$=""
1Ø5Ø LOCATE 24,3:PRINT "(S)mall or (L)arge envelope? ";:E$=INPUT$(1)
1Ø6Ø IF E$="s" OR E$="S" THEN X=18
1Ø7Ø IF E$="l" OR E$="L" THEN X=35
1Ø8Ø LOCATE 24,3:PRINT "Does your printer need initialization (Y or N)? ";PRINTE
R$=INPUT$(1)
1Ø9Ø LOCATE 23,3:COLOR KOLORB,KOLOR1:PRINT "      Position the printhead at the
upper left corner of the envelope.      "
11ØØ LOCATE 24,3:          PRINT "            Type return when you are ready to
 begin printing.              "
111Ø COLOR KOLOR1,KOLORB
112Ø Q$=INPUT$(1):IF Q$=CHR$(27) THEN 61Ø
113Ø IF PRINTER$="y" OR PRINTER$="Y" THEN LPRINT INITPRINT$;
114Ø LPRINT
115Ø LPRINT TAB(2);N$
116Ø LPRINT TAB(2);A$
117Ø LPRINT TAB(2);T$
118Ø FOR I=1 TO 6:LPRINT:NEXT
119Ø LPRINT TAB(X);N1$
12ØØ LPRINT TAB(X);A1$
121Ø IF A2$<>"" THEN LPRINT TAB(X);A2$
122Ø LPRINT TAB(X);T1$;",";S$;" ";C$
123Ø FOR I=1 TO 6:LPRINT:NEXT
124Ø IF A3$ <>"" THEN LPRINT TAB(4);"Attention: ";A3$
125Ø IF PRINTER$="y" OR PRINTER$="Y" THEN LPRINT RESPRINT$
126Ø CLS:SYMBOL(16Ø,5Ø),"SELECTIONS AVAILABLE",2,2,KOLOR2
127Ø C=22
128Ø LOCATE 12,1
129Ø PRINT TAB(C);:COLOR KOLORB,KOLOR2:PRINT " A ";:COLOR KOLOR1,KOLORB:PRINT "
   Address another envelope."
13ØØ PRINT
131Ø PRINT TAB(C);:COLOR KOLORB,KOLOR2:PRINT " R ";:COLOR KOLOR1,KOLORB:PRINT "
   Repeat print current envelope."
132Ø PRINT
133Ø PRINT TAB(C);:COLOR KOLORB,KOLOR2:PRINT " E ";:COLOR KOLOR1,KOLORB:PRINT "
   Exit to MSDOS System level."
134Ø PRINT
135Ø PRINT TAB(C);:COLOR KOLORB,KOLOR2:PRINT " F ";:COLOR KOLOR1,KOLORB:PRINT "
   Finish and remain in Basic."
136Ø LOCATE 24,1:PRINT "Enter your selection: ";:Q$=INPUT$(1)
137Ø IF Q$="a" OR Q$="A" THEN 35Ø
138Ø IF Q$="r" OR Q$="R" THEN 61Ø
139Ø IF Q$="e" OR Q$="E" THEN SYSTEM
14ØØ IF Q$="f" OR Q$="F" THEN CLS:END
141Ø GOTO 126Ø
142Ø IF ERR=2 AND ERL=88Ø THEN RESUME 87Ø ELSE COLOR 2,Ø:LOCATE 25,1:PRINT "Erro
r #";ERR;"in line number";ERL:END
```



Software review

Disk Catalog System — A Simple Catalog Program

Every time I open a computer magazine I see a program designed to catalog disk collections. I've looked at a few of them and didn't care for any. Most were cumbersome to use and just not worth the trouble. I have also tried a few of the commercial products and didn't care for them either. *Disk Catalog System* by Palm Bay Software has changed my opinion. Here, at last, is one I like.

DCS is thorough and easy to use. It will run on the 555 as well as on any IBM compatible I tried. It comes pre-installed for the 555 but includes installation software that will make it work on any terminal (or printer) you are likely to need.

Documentation comes on one of the two disks supplied in the package. You can create the document in hard copy form by using the DOS PRINT command or by loading it into *WordStar* as a non-document file. The documentation is good. It covers everything you need to run the program. Actually, *DCS* is so simple to use that you may never need the documentation. There is a READ.ME file and I found the information in that to be adequate for use of the software.

DCS loads into memory so that a separate data disk can be put into Drive A while the disk to be cataloged is in Drive B. Just keep feeding it disks until you run out of room. Then put in another and keep going.

DCS will print labels, give you a summary of your database, list all your disks by volume name or file, and do all this on the screen or the printer. A few disks can keep track of your entire collection with ease. *DCS* will allow you to update your files as you add more disks to your collection.

In short, *DCS* is a worthwhile software addition.

(Palm Bay Software, P.O. Box 61625, Palm Bay, FL 32906, 305-725-6065, $29.95)

— Jim Pile

Software review

Turbo Toolkit — PASCAL Graphics And More!

One of the best things about Sanyo BASIC is its spectacular graphics. Other versions of BASIC have some graphics commands, but virtually all are inferior. One of the worst things about Sanyo BASIC is that it is an interpreted language and thus, is pretty slow. Also, BASIC is not a particularly good language for writing (and reading) complex programs. There are many good compilers available for the Sanyo, including several BASIC compilers, but most do not support all of the graphics. Now, thanks to Migraph Software, we can have the best of both worlds.

Turbo Toolkit is a collection of files of source code which can be inserted in Turbo PASCAL programs to implement various procedures. For graphics, there are routines to change the colors and draw arcs, lines, ellipses, and either blank or colored circles and rectangles. There are also routines to execute PUT and GET, save and load full screens from disk files, set up graphics windows, implement two graphics fonts for enlarged text and an analogue of BASIC's SYMBOL command. Included as well, are a few files for controlling a Mouse Systems' mouse. Almost fifty files in all.

The graphics routines use the same Cartesian coordinate system as Sanyo BASIC. In fact, most of the equivalents are

AA COMPUTER EXCHANGE

COMPLETE SELECTION OF SANYO SOFTWARE

ORDER LINE: 1-904-388-0018

ACCESSORIES		**INFOCOM**		Thunder Chief (128K)	$27
360K TEAC 55B Drive	$119	Zork Series (EA)	$34	Tic Tac Toe	19
800K TEAC 55F Drive	129	Hitchhiker's Guide	34	Time Bandit (128K)	27
10 MEG Ext. Drive w/Cont.	1299	Cutthroats	34	Transfer	45
Power Supply Booster Kit	29	Infidel	34	Type Right	27
128K Memory Exp. (150NS)	20	**NORELL**		**MICROSOFT**	
512K Mem. Exp. (Prewired)	139	LISP/88 Intrp.	34	MS-DOS Guide	18
512K Mem. Exp. Plans	10	Computer Chef	34	MS-DOS Prog. Ref.	38
RS 232 Card	49	Original Adv.	17	**OLYMPIC**	
Sanyo/IBM Graphics Board	169	Hermit's Secret	17	Accounting Series (EA)	75
300 Baud Modem w/Cable	79	Phantom's Revenge	17	Postmaster II	38
300/1200 Baud Modem w/Cable	209	Word Wiggle	24	Money Analysis	29
2 Button Joystick	20	Munchkin	17	Finance Manager	29
Dual Joystick Adapter	22	Elize	17	Appointment Book	29
RGB Sync Inverter	36	Monster Rally	17	Touch Skills	29
13" RGB/Comp. Color Monitor	269	**MICHTRON**		States & Capitals	23
12" Green Comp. Monitor	89	Adventure Disk #2	30	Body Systems	29
12" Amber Comp. Monitor	89	Adventure Disk #3	30	Trivia Mania	29
Sanyo RGB Cable	19	Business Agreements	38	Flyboy Flight Sim.	29
IBM RGB Cable	19	Calendar	19	Byte Buster	23
Centronics Printer Cable	18	Cashman	27	Flash Card	23
IBM-Centr. Printer Cable	18	Connerman	30	Blackjack	30
Panasonic 1090 Printer	CALL	DC-10 Flight Simulator	30	Spelling Bee	30
Panasonic 1091 Printer	CALL	Demon Seed	27	Recruiter	60
Panasonic 1092 Printer	CALL	DS DOS+ II 2.11	38	**A-OK**	
Panasonic 1093 Printer	CALL	DS DOS+ 1.25	22	DOS-1 w/Print Screen	46
Panasonic 3151 Printer	CALL	Emperor	27	DOS-2 w/Print Screen	56
Sanyo MS-DOS Utility Disk	10	Freez Frame (128K)	30	DOS-3 w/Print Screen	66
Dust Cover Set	12	Graffiti (256K)	30	DOS-4 w/Print Screen	66
Tilt Swivel Stand	19	King Arthur	19	**COMPUTER TOOLBOX**	
AA Computer Price List	FREE	Major Motion	24	Intellicom	62
Sanyo Schematics		Master Graph (128K)	68	**U.S. DIGITAL**	
Bonus 5¼" BSDD Disks (box of 11)	13	M-Disk (256K)	27	CpEmulaton	89
8087 Math Chip	110	Mighty Mail	75	Prep	45
BORLAND INTERNATIONAL		MI-Key (128K)	27	Copylink	89
Turbo Pascal 3.0	63	MI-Term (128K)	60	**2500AD**	
Turbo Tutorial	31	Mudpies	27	8086 Macro Assembler	89
T Pascal w/8087 or BCD	98	Personal Money Manager	38	**TLS**	
T Pascal w/BCD & 8087	112	Picasso (256K)	75	Sanyo Bonus Pack	39
Turbo Toolbox	49	Printer Helper	27	Easy Planner/Filer	23
SOFTAID		Quick & Simple	38	Sanyo 775	39
MT Basic Compiler w/Windows	49	Rebounce	19	**MANUALS**	
MT Basic Compiler for 8087	89	Soft Spool	27	Basic Reference	29
		Solarism	38	**SOFTWARE ANSWERS**	
		Solitaire	27	Run Lotus 123 w/o Video Bd. works w/Floppy or Hd. Disk	36
		Super Directory	30		
		Super Zap	38		

2726 PARK ST., JACKSONVILLE, FL 32205

Orders with cashiers check, money order and VISA/MC shipped promptly • For personal/company checks allow 3 weeks for clearance • CODs add $3.00 • 15% restocking charge • All software sales are final • For VISA/MC add 3% • Shipping charges extra, $300 minimum • Prices may differ in AA stores • Florida residents add 5% tax • Prices subject to change without notice.

provided in the documentation. The results are of similar quality as well. As far as I can tell, the only major Sanyo BASIC graphics command that is not provided here is PAINT (and this is promised in a inexpensive extension this fall).

PASCAL is an ideal language for a package like this since it allows (and encourages) the programmer to use functions and procedures that are somewhat autonomous from the rest of the program. Borland's *Turbo PASCAL* makes it even easier since it supports commands to insert disk files into programs at compile time. To put some of *Turbo Toolkit's* routines into a program, one need only write commands like $I ARC.PAS. The package also contains a "frame" program that declares the relevant global variables (and constants) and contains the "include" commands.

There is only one "flaw" in the actual program. The routine for compressing a screen to a small disk file will not work until some of the comments are removed. There are also a few mistakes in the documentation, but none of these should cause any trouble. There are references to a file called README.DOC and to a page for users with more than 256K, but neither of these are provided. Also, each command discussed in the documentation contains a list of the files that must be included for it to work. In a few cases, the file SETPLANE was omitted. Paul Mazurek, the author of the program, indicated that all of these items would be corrected immediately and that those who have already purchased the program can call the toll-free number for the relevant information.

(Migraph Software, 31849 Pacific Highway South (141), Federal Way, WA 98003, 1-800-554-7274, $39.95)

— Stewart Shapiro

Software review

Scripture Memory — Learning Bible Verse The Easy Way

Scripture Memory is a database for memorizing Bible scripture. It was written in BASIC specifically for the Sanyo MBC-550/555 and utilizes its color and graphics capabilities to the best advantage. The program runs from a main menu, is user-friendly and comes with decent documentation.

SCRPQOUT.BAS, the main program, is almost 23K which prohibits its loading on a 128K machine. One SS/DD drive, and a monochrome or color monitor, rounds out the minimum system requirements. To optimize the program's use, a printer is strongly recommended.

Scripture Memory utilizes the technique of associating topic, reference and verse for scripture memory. The easiest way to describe this program is to explain each option of the main menu which is called with function keys as follows:

PF1, Add A New Verse — You are prompted to enter, with maximum spaces as indicated, the topic (16), reference (16) and verse (224). Enter the verse as if using your word processor. Don't hyphenate or add extra spaces to avoid splitting a word on the screen line, as the program will take care of this for you. Once everything is entered, you are given a final chance to review the entire entry prior to actually entering it into the database.

Greywolf 800–2 Upgrade

"A truly excellent upgrade" –– Soft Sector Review, April, 1985

Get all the features of the best Sanyo 550 series upgrade available. Comes with MS–DOS 1.25 and 2.11 versions plus the 800–2 Adaptor Switch. The switch allows you to use all the features of the Sanyo Video RAM Board as well as booting copy protected 360K diskettes. Also includes utility software, personal datebook/calendar program, and 20 page user's manual with easy–to–follow instructions. Complete for $99.95

Build Your Own Hard Drive

Build and internal or external hard drive for a fraction of the cost of a commercial unit. Use the Greywolf host adaptor board and software; then add a hard drive, power supply, controller and case to finish the project. Recommended for "hackers." Complete cost of board and software: $99.95

Complete Catalog Available

We carry a full line of Sanyo computer accessories as well as products for other types of computers. Ask about the GT–XT, an IBM PC/XT compatible computer with hard drive starting at $1695.00. Write for details.

Terms:
Mastercard & Visa add 8%
Certified Check or money order
Shipping extra, CT residents add 7.5%
Hours: Mon–Thur 10:00 A.M.– 7:30 P.M., Fri – 5:00 P.M.

Greywolf TECHNOLOGIES

CALL (203) 429–9209

"Free" Sanyo Bulletin Board
24 Hours 7 days a week
(313) 348-4479

VISIT OUR RETAIL STORE
MON. & SAT. 10:00 to 5:00
TUES. thru FRI. 10:00 to 7:00
Orders and Information
(313) 348-4477

MICHIGAN SOFTWARE DISTRIBUTORS INC.
43345 GRAND RIVER • NOVI, MICHIGAN 48050

TOP TEN SANYO PROGRAMS

#1 BEST SELLER: BASIC ENHANCED 2.0
DKB has done it again! Made Basic Enhanced even more powerful by adding Shell, Sort, CHDIR, MKDIR and others, to the already Search, Sound, and H Copy commands. It is now possible to access MS DOS routines without leaving Basic with the Shell command. For example, you can do a CHKDSK from within a basic program, even change logged drive. A must for every basic programmer or user 49.95
(Customers with Version 1.XX/Upgrade .....15.00 + 3.00 S&H)
(Demo/Refundable toward purchase .....5.00 + 3.00 S&H)

#2: SPEED SCREEN/Speeds up video display for 2.11 by DKB 24.95
#3: SANYOPOLY/All time favorite board game by LEONARD HYRE .29.95
#4: SANYO SPOOLER/Software spooler 1-63K available by DKB ...34.95
#5: SCREEN PRINT/Dump to Epson, Gemini, Legend, Panasonic ..29.95
#6: SANYO HOST/Full computer access via telephone 179.95
#7: RECIPE FILE/Store & Retreives your recipes by R. LANDRY 39.95
#8&9: PFKEY & KEYWORD/Change function keys in basic ....each 9.95
#10: TREKBOER • CALIXTO ISLAND • SHENANIGANS • SEA SEARCH BLACK SANCTUM • Graphic Adventures (Video Board) . . Each 29.95

CUSTOM SANYO DUST COVERS
(Grey Leather "Like" — Two Year Warranty)
• CRT 36/CPU or CRT 30/CPU - one unit . . 29.95 • CPU/only 19.95
• Keyboard/555 SERIES - Separate unit . . 12.00 • CRT/only 19.95
• Keyboard/775 SERIES - Separate unit . . 14.00 • Made to order . Call $

SANYO 555 "PLUG N' STORE" HARD DISK ADAPTER
by DKB SOFTWARE
• **HARD DISK ADAPTER & SOFTWARE ONLY**/Ready to plug into your hard disk with a XEBEC controller NO# S1410 or 1410A $150.00
• COMPLETE 10 MEG - EXTERNAL/9710H; Adapter; Software ...$999.95

• VISA, MASTERCARD, AMERICAN EXPRESS, C.O.D., CHECK •
Prices subject to change — Dealer inquires invited — Add $3.00 shipping and handling

PF2, Current Review — After the screen clears, you will be prompted to quote the last 10 entries into the database. As each reference is displayed on the screen, with corresponding topic, a scratch pad is provided to optionally key in your response. Whether you use the pad or recite verbally is a matter of personal choice. When the correct verse is displayed, *you* must decide and enter whether or not the response was correct. An option is provided to exit the review at any time and the percentage of correct recitals at that point will be reflected correctly in the performance review.

PF3, Back Review — As you continue to enter verse, a Back Review file is created from those in excess of the most current 10. In this review, five randomly selected entries from the appropriate file are presented.

PF4, Performance Review — This is a nice bar chart illustrating the percentage of correct answers year to date, current month and current session for both the current and back reviews.

PF5, Review Of Current Misses and PF6, Review Of Back Misses — Verse missed in the corresponding review during the current session is displayed with an option to send all or any to the printer.

PF7, Print Entire Current Review and PF8, Print Today's Back Review — Allows you to obtain a hard copy of the verse to study at another time or place.

PF9, Word Search Through Back Review — Allows you to search for a specific word or phrase in the topics, references or the verse. When a hit is found, you can print the verse, proceed with the search or exit. The search is painfully slow. Another option, to automatically send all verse found to the printer, allows you to utilize this time to review the listings from PF5 through PF8.

PF10, Change Program — This is an installation option which allows you to customize the program as follows:

1) Drive where the Back Review file is located.
2) Size of the Back Review (PF3) — 40 maximum.
3) Colors of background, Current Review and "other" options.

The program provides a unique, easy and fun way to learn Bible verse. In addition to the program, an optional $5 Back Review file is available with verse from the Navigator's Topical Memory System. Verse in both Current and Back Review files are from the 1983 Edition New King James Version Bible.

An IBM version of the program is also available.

(Bill Branham, 42690 Saltz Rd., Canton, MI 48187, $20, Navigator's Topical Memory System, $5)

— Bob MacDonald

Software review

FastStar — Faster Screen Operations in *WordStar*

Have you ever noticed that *WordStar* seems a bit sluggish on the Sanyo? It scrolls slowly and the menus come up whenever they're good and ready. For a long time, I have found it to be very irritating. Now there is a solution. A program called *FastStar* will make *WordStar* scroll smoothly and quickly. Menus will seem to flash on the screen.

The literature which comes with *FastStar* says the screen output operations increase by a factor of three. It claims an even more dramatic increase when using the Video RAM Board. I can verify the speed increase on the standard MBC-555, but I have not tried *FastStar* on a machine with the video board.

Unfortunately, there is a catch. There is no color when using *FastStar*. PT Software, the producer, says it should run color when using the Video RAM Board. They had not tested that theory at the time the literature I received was written. If you have a Video RAM Board and wish to run *WordStar* with it in color, I suggest you contact PT software for the latest information.

If you don't have the Video RAM Board, you will clearly have to decide between color and speed. If you are using a monochrome monitor, as I am, then by all means purchase a copy of *FastStar*. You won't regret it for a moment. The smooth scrolling alone is worth the price. Remember though, it isn't just better scrolling you get with *FastStar*. All screen outputs are dramatically quicker.

The Sanyo scrolls slowly because all three primary colors exist as separate screens. The three screens move at the same time causing things to slow down. There are patches available to eliminate two of the screens. This gives you one monochrome screen to move and speed things up considerably. *FastStar* patches into the WS.COM file directly. Instead of the standard DOS call for screen output, the *FastStar* patch causes *WordStar* to print directly to the screen.

If you would like to see how the Sanyo version of *WordStar* works, load it on an IBM or a compatible. You will see the same slow screen that you have on your Sanyo. Now, try to load the IBM version on the Sanyo. The screen will display the function key assignments at the bottom of the screen and that's all. This little experiment tells the whole story. The IBM

RUN LOTUS 1-2-3™ ON SANYO 550/555 FOR ONLY $40.

SOFTWARE ANSWER #2B is a program that allows LOTUS 1-2-3 version 1A to run with all features on a SANYO 550/555 with 256K memory.

- HIGH RESOLUTION GRAPHICS
- SOUND WORKS (to indicate errors)
- EASY SWITCH TO AND FROM OTHER PCs
- ONLY USES 5K MEMORY
- RUNS 1-2-3 FROM HARD DISK
- NO VIDEO BOARD REQUIRED

SOFTWARE ANSWERS, INC. 2888 BLUFF ST. #460 BOULDER, CO 80301 (303) 441-9290

™ Lotus Development Corp.

VIESSMAN & KOHN

ROUTE 2 BOX 45 VIENNA, MD 65582

ANNOUNCE

Card-Shark

- ♠ Draw Poker
- ♥ Head to Head Poker
- ♦ Casino Poker
- ♣ Blackjack

ONE DISK 4 EXCITING GAMES.SPECTACULAR COLOR GRAPHICS

B&W Compatible Specify MS-DOS 1.25 or 2.11 - No COD's

$29.95 + $2.75 S&H TEL.(314) 422-3385

version prints directly to the screen and the Sanyo version prints through DOS. The Sanyo version works on the IBM because the DOS calls are compatible. The IBM version doesn't work on the Sanyo because the screen address is different from the IBM. So, *FastStar* makes the Sanyo version of *WordStar* operate in a similar manner to that of the IBM version.

Included on the *FastStar* diskette is as good a RAM disk as I have seen for the Sanyo. It allows 16K to 160K and, like the IBM VDISK, it automatically positions itself after the last logical drive. It is activated in `CONFIG.SYS` and remains activated until the computer is rebooted. All the necessary *WordStar* files will load into a 73K RAM disk. When you use the RAM disk, don't forget to install *WordStar* for the proper default drive. That will normally be Drive E since the Sanyo already has four logical drives.

The combination of *FastStar, WordStar* and a RAM disk is hard to beat. Using *WordStar* becomes more pleasant than you might imagine.

I like *FastStar*. I recommend it to anyone with a monochrome monitor. As for those of you with color, you'll have to decide whether the color is worth giving up for a fast *WordStar*.

(PT Software, 149-C Overmount Ave., West Paterson, NJ 07424, 201-890-0656, $20)

— Jim Pile

(512) 657-2012

Wagner Bros.

NEW

RR

RAGS TO RICHES

Chang Labs

Accounting Software

- **Ledger:** Double-Entry General Ledger for Bookkeeping/Accounting $125.
- **Receivables:** Accounts receivable for Accounting/Collections $125.
- **Payables:** Accounts Payable for Bookkeeping/Cash Flow $125.

Rags to Riches was developed especially for small businesses with under 20 employees: self-employed business people, home-operated businesses, small manufacturers, service businesses, farms and ranches, professionals, consultants, and retailers, among others. Free Demo available.
System Requires DOS 2.11 Dual 360K Drives

VISA

master charge

14008 Nacogdoches
San Antonio, Texas 78247

Spell — In Search Of The Elusive Typo

Until recently, it was my considered opinion that spelling programs were basically useless. Why, I would reason, do I need a software program to tell me whether or not my spelling is accurate? I'm a writer, for heaven's sake! If I'm unsure of a word, I look it up, right then.

My initial forays into spelling programs left me with the notion that I'd spend a lot of time instructing the program to ignore words that began with a capital letter, or utilized some sort of colloquialism like "Wouldja?" or "Didja?"

And then I remembered this friend in college, a real brain, who would blithely turn in final papers with words like "sertain" or "tabel." I reasoned that while such programs might not be useful to me, there was, perhaps, a niche for them in the world of the poor speller.

So it was, with a bias, that I slipped The Software Toolworks *Spell* program onto my *WordStar* disk and proceeded to check a few stories.

The documentation for *Spell* is prepared for a variety of users. The introduction defines these users, provides an explanation of what the program does and details storage requirements.

Spell uses a root dictionary and a table of common prefixes and suffixes. This allows it to recognize more than 50,000 English words. (Microsoft's *SpellStar*, which came with your Sanyo, recognizes approximately 20,000.)

Skip immediately to Section 2.4 and you receive instructions on copying the three *Spell* programs onto your *WordStar* disk. If you get an "Invalid number of parameters" message, try again and make sure there is no space between the drive letter and the name of the file you're copying. In other words, `COPY B:SPELL.EXE`, not `COPY B: SPELL.EXE`. Once copied, keep in mind that the various *Spell* programs cannot be accessed directly through *WordStar*. In order to utilize them, you must first exit to System ('X' on *WordStar's* Opening Menu) and then execute *Spell*.

As I had suspected would happen, I was immediately accused of misspelling my name, my hometown and a variety of words like "bringin" "idiosyncratic" (which I knew was spelled correctly) and "Dunkin' Donuts."

Spell, unlike *SpellStar* will not fix the word for you, but it will mark the text with a '#' so that with the `SEARCH` function

RENT THE PUBLIC DOMAIN!

Public Domain Software isn't copyrighted! Business-Educational-Games-Graphics-Finance Utilities, and more...Hundreds of useful programs you can rent and copy yourself.

70 VOLUME LIBRARY FOR THE SANYO 550/555

VOL. 1-70 (70 Disk sides) ..... $ 70.00
SAMPLE DISK (15 programs) ..... $ 5.00

550/555-VIDEO BOARD, 775 or IBM OWNERS

300 VOLUME IBM PC/MS-DOS $300.00
VOL. 1-50 (50 Disk sides) ..... $ 50.00

Rental is for 7 days, add $7.50 for shipping plus Refundable Security Deposit of $2.00 per volume.
Send $5 for sample disk or S.A.S.E. for more information.

FUTURESYSTEMS, Box 3040, Vista, CA 92083

(*WordStar* mode; Quick Menu, 'F') you can locate it. You can also add words to the dictionary, ignore ones that you don't use often, start back at the top of the list if you think you've made a mistake and add a word "root" where you find it necessary.

The Root function is designed so that if, for example, *Spell* has flagged the word "restored" as an error you could, by adding its root ("store") to the dictionary, get the program to not only recognize "restored," but "restore," "storing" and "stores" as well.

When *Spell* is through with your instructions about the individual words, it asks whether you are ready to have the file marked and the dictionary updated. The first time I said "Yes" to this, I received an ominous message — "Trouble writing new dictionary. Delete old dictionary before writing?" (Risky!)

Not sure of just what the problem was, I said "no" and *Spell* just marked my document. The problem was space on the *WordStar* disk. I had copied *Spell* onto a master disk, complete with DOS, *WordStar, SpellStar,* and *MailMerge*, so that when it came time for *Spell* to make some adjustments in the dictionary, it asked for some storage (breathing room) by requesting permission to delete the old dictionary. The risk involved is that if Murphy's Law asserts itself (i.e., with a deadly power failure or surge) while the dictionary is in limbo, the original is gone. But, if you're working from a copy, as you should be, then there will only be the minor inconvenience of recopying the original back onto your working disk.

In running *Spell*, you may select many options, using one or more *switches* in the command line. These switches will access a variety of features including the ability to change your text marking character (from '#' to '&', for example), create a file of misspelled words, utilize a different dictionary, ignore certain control characters in a text or add a list of words.

As the documentation is quick to point out in its "Limitations of *Spell*" section, "*Spell* is not perfect and cannot detect every error you make. It has three major limitations. It cannot check usage. It does not know every English word and it can occasionally fail to catch an error."

This means that it cannot tell you whether your use of the word "affected" should be "effected" or whether you typed "rather then" for "rather than." Because *Spell* knows common prefixes and suffixes, it will happily accept your use of the word "buyed" instead of "bought."

Because of the method used to encode its dictionary (a method chosen to store the dictionary in a relatively small disk space and provide fast lookup of words), *Spell* will occasionally let a nonexistent word slip through. The error factor increases as the size of the dictionary grows. Adding 1,000 words to the existing dictionary (DICTNARY.SPL) will increase the error factor by four-tenths of a percent. Interestingly enough, the error factor on CP/M machines is much larger than that of machines utilizing MS-DOS. We Sanyo users make out on that deal.

My conversion to belief in the program's usefulness changed when I invoked *Spell* to check a document I had been sending out for weeks to magazines. The program detected a typographical error that I had overlooked in spite of repeated proofreading. It is, indeed, much quicker to check *Spell's* list of words than it is to go through 15 pages of a document looking for them. In addition, it also became clear that I had severely underestimated the number of words in this particular document (BC, before computer, I used a "count the words on three pages, divide by three and multiply times number of pages" formula). If nothing else, I knew I'd be using the program in the future to do the counting for me. (*SpellStar* performs both of these functions, as well. The two programs, however, gave me a different "total number of words" figure.)

Spell is an effective program. It performs its tasks quickly and (with aforementioned error factor), well. It is simple to use and requires very little referencing to the documentation once the basic commands have been learned.

And hoo knows, it mite improve your speling.

(The Software Toolworks, 15233 Ventura Boulevard, Suite 1118, Sherman Oaks, CA 91403, 818-986-4885, $49.95)

— Skip Maloney

RUSH ME
DEAR WORD !

I'm tired of slow edititing! I need a word processor that's fast, easy and reliable. Here's my check for $19.95.

Honeybit Software
195 S.E. 26th Ave.
Hillsboro OR 97123

Name_____
Addr_____
_____

1-800-437-4757 EXT. 241

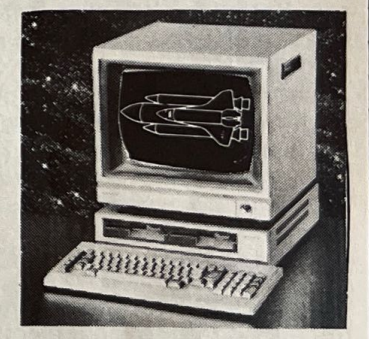
Put CAD in your SANYO

Professional CAD is now available with SANYCAD. 256 K recommended. Specify 1.25 or 2.11 DOS.

SANYCAD 2.0
with
HPGL PLOTTER UTILITY

$149.95

Printer Utility $39.95



Dealer inquiries invited.
Send $10.00 (Refundable) for demo disk and tutorial.

NEW
Send large SASE for expanded list of IBM software that runs on the Sanyo 550 series.

Computer Associates, Inc.
VISA MasterCard
Box 683
701-281-0549 West Fargo, ND 58078

In Europe or Canada order from

Europe—Zero S.C. Nikkelstraat 39
2984 AM,
Ridderkerk, Netherlands
Canada—CP & A Ltd.
918 Pape Ave.,
Toronto, Canada M4K 3V2

Send for our catalog—Sanyo Applications

WE'RE BRINGING THE SANYO

SOFT SECTOR'S BROADENING ITS SPECTRUM

SOFT SECTOR and the Delphi Information Utility have joined together to allow Sanyo owners all over the world to connect with one another!

Delphi is a full-service information utility. It offers everything from up-to-the-minute news stories from The Associated Press to electronic mail services. But, *best of all*, it now has **a special forum for owners of MS-DOS computers, and it's operated by the people who bring you SOFT SECTOR each month.**

The MS-DOS Special Interest Group (SIG) features a variety of services, including an open forum where you can send and receive messages from Sanyo owners all over the world. It also has databases for exchanging programs, where you can upload your favorites and download programs written by other Sanyo enthusiasts.

THE WORLD OF MS-DOS

The MS-DOS SIG's conference feature allows you to meet electronically with other members of the Sanyo Community. You can join conferences with many notables in the world of MS-DOS on a regular basis. Conference schedules will appear in SOFT SECTOR each month. Be sure to check online announcements for changes and additions.

SOFT SECTOR ON LINE

On Delphi, you also are able to buy SOFT SECTOR ON DISK — order a whole set, or download an individual program immediately. You can also renew your SOFT SECTOR subscription, make a fast and easy order for software or hardware from a multitude of vendors, or inquire about products on the MS-DOS SIG.

We also have a number of **programs that you can download** and use, just for the cost of the time you spend transferring them. There'll also be **corrections for SOFT SECTOR articles**, helpful hints and many other useful features.

FREE LIFETIME MEMBERSHIP

SOFT SECTOR is offering subscribers a free lifetime subscription to Delphi — a $29.95 value — and a free hour of connect time — a $6 value at either 300 or 1200 Baud during evening, holiday and weekend hours — so you can sample Delphi and the brand new SOFT SECTOR MS-DOS SIG. **That's right. Your subscription to SOFT SECTOR entitles you to this $35.95 value as a *free bonus!***

If you're not a SOFT SECTOR subscriber, just enter your order when you sign on with Delphi and you'll get the same great deal! For our $28 subscription fee, you'll get the finest Sanyo computer magazine ever, a free lifetime subscription to Delphi and a free hour of connect time.

SAVE EVEN MORE

Want to save an extra $15? While you're online, you can order the *Delphi Handbook and Command Card* ($21.95) and three hours of connect time ($18) for only $24.95.

Delphi provides us all with **Immediate Sanyo Community**. Check it out today. After all, you can sample it for free!

DELPHI

TYPE:

GROUP MSDOS

COMMUNITY TOGETHER!

How to reach the MS-DOS SIG on Delphi . . .

There are several ways to connect to Delphi and SOFT SECTOR's MS-DOS SIG. In most cities you will not even have to pay long distance charges; you can use special data communications networks, like Uninet, Tymnet and the Canadian Datapac network.

First, set your terminal program to operate at either 300 or 1200 Baud (depending on the modem you have), and also select either 7 bits with even parity or 8 bits with no parity, and one stop bit. (If one combination doesn't work, try another.)

Decide which network you should use (there is no charge for any of them, unless you have to make a long-distance call) and follow the instructions below:

On Uninet: Call (800) 821-5340 to get the Uninet number for your area. After you call the appropriate number for your own area and make connection, press ENTER, the period key (.) and ENTER again. At the "service:" prompt, type GVC (for General Videotex Corporation) and ENTER.

On Tymnet: Call (800) 336-0149 to get the Tymnet number for your area. After you dial your designated number and make connection, simply press 'A' no matter what appears on the screen. When "please log in:" appears, type DELPHI and press ENTER.

From Canada (on Datapac): Call Delphi Customer Service at (617) 491-3393 to get the Datapac number for your area. After you connect, press the period key (.) and ENTER (use two periods if you're using 1200 Baud). Type SET 2:1, 3:126 and press ENTER. Now type p 1 3106, DELPHI; and press ENTER.

From other countries: Many countries have their own data networks that can connect to either Uninet or Tymnet. Check with the telephone authorities in your country for details on how to sign up for this service. When you have an account set up, you can reach Delphi with a "host code" of 312561703088 through Uninet, or 310600601500 through Tymnet. (You'll have to pay the toll charges for this connection.)

Type in Your User Name

If you're already a subscriber to SOFT SECTOR, at the "USERNAME:" prompt, type SOFTSECTORSU and press ENTER. At the "PASSWORD:" prompt, type your individual subscription number from the mailing label of your latest issue of SOFT SECTOR. (If there are one or more zeros at the beginning of this number, include them.)

If you don't already have a subscription, at the "USERNAME:" prompt, type SOFTSECTORORD and press ENTER. At the "PASSWORD:" prompt, type SENDSUB and press ENTER. Have your MasterCard, VISA or American Express card ready, because you'll be led through a series of questions that will enable us to put your SOFT SECTOR and Delphi subscriptions into effect. In an effort to hold down non-editorial costs, we do not bill for subscriptions.

If you make a typing error, just press ENTER and start over. Remember that at any point, when you're on Delphi, you can type HELP to get help on how to use the system. To get off the system just type BYE.

If you find that you're unable to log onto Delphi and enter the MS-DOS SIG after following these instructions, call us during afternoon business hours at (502) 228-4492. We'll be glad to offer assistance.

Come Visit Us! Type: GROUP MSDOS

After you sign in, you'll be prompted to set up your own, personal "user name" — Delphi is a friendly service, no numbers to remember — and you'll be asked a number of questions so Delphi can set up your account. You'll also be assigned a temporary password. No time is assessed against your free hour of service while you answer these questions.

Delphi will tell you that your account will be ready after 6 p.m. the same day if you sign up before noon (Eastern time zone.) If not, your account will be ready at 6 p.m. the next day. Once an account is opened, *each SOFT SECTOR subscriber will be credited with an hour of free time!*

When you log back in, use your chosen user name and your temporary password to access the system. At that point, you will meet Max, who will help you configure things and will change your temporary password into your own *personal* password. This is the password you will use for subsequent sessions — or until you change it. Again, there is *no charge* for the time you spend configuring your account. Your hour of free time starts after Max bids you goodbye.

You'll wind up at the Delphi Main Menu; type in GROUP MSDOS and **join us on the MS-DOS SIG!**

Two Great Holiday Gift Ideas

A SOFT SECTOR GIFT CERTIFICATE

Give your Sanyo friends a gift you know they'll want under their tree — a year's subscription to SOFT SECTOR.
First, they'll receive a handsome card announcing your gift. Then your friends will be reminded of you each month for the next 12 months when they receive a four-color glossy issue of SOFT SECTOR. Each issue includes the information, programs, reviews and all important technical advice that you've come to value.

When you give SOFT SECTOR to your friends, you'll also be safeguarding your own collection. No more frantic searching for those back issues you've lent a friend.

Give a SOFT SECTOR gift certificate and let your friends in on something you already know — SOFT SECTOR is the perfect companion for the Sanyo MBC-550, 555 and 775 series computers!

Get your order to us by Nov. 10 and we'll begin your friends' subscriptions with the January SOFT SECTOR.

Please begin a one-year (12 issues) gift subscription to SOFT SECTOR for:

Name _____
Address _____
City _____ State _____ ZIP _____

From:
Name _____
Address _____
City _____ State _____ ZIP _____

☐ My payment is enclosed
☐ Please bill to my ☐ VISA ☐ MasterCard ☐ American Express
My account # _____ Exp. date _____

Signature _____

Subscriptions to SOFT SECTOR are $28 in the United States, U.S. $35 in Canada. The surface rate to other countries is U.S. $64; the air rate, U.S. $85. Kentucky residents add 5% sales tax. **U.S. currency *only*, please. All subscriptions begin with the current issue.** Please allow 5 to 6 weeks for delivery. In order to hold down costs, we do not bill.

Mail to:
SOFT SECTOR Gift Certificate, The Falsoft Building, Prospect, KY 40059.
To order by phone, call (502) 228-4492

DISTINCTIVE AND DURABLE SOFT SECTOR BINDERS

Do yourself and your SOFT SECTOR friends a favor! Protect and showcase a valuable resource — each and every issue of SOFT SECTOR — with high-quality, blue vinyl binders with the magazine's name embossed in gold.

Spend more time with your Sanyo and less on frustrating searches for misplaced issues. Organize your SOFT SECTOR library!

These handsome royal blue binders cost just $7.50 (please add $2.50 for shipping and handling per binder).

SAVE! Buy four or more back issues of SOFT SECTOR with this order and save $1 per issue. Use the Back Issue Order Form on Page 51.

Mail to:
Soft Sector Binders
The Falsoft Building
Prospect, KY 40059

☐ **YES. Please send me**_____ **SOFT SECTOR binder(s)** at $7.50 each (plus $2.50 for shipping and handling per binder). If your order is to be sent via U.S. Mail to a post office box or to another country, please add $2. Kentucky residents add 5% sales tax.

Name _____
Address _____
City _____ State _____ ZIP _____

☐ My check in the amount of _____ is enclosed. (In order to hold down costs, we do not bill.)

Charge to: ☐ VISA ☐ MasterCard ☐ American Express

Account Number _____ Exp. Date _____
Signature _____

The Device Driver:
An MS-DOS Power Feature

By Danny Humphress

Over the past 15 months, "Mastering MS-DOS" has covered a lot of ground. As we move further into our second year of this column, we are evolving from a beginner's column to one for the MS-DOS power user — the person who feels comfortable with MS-DOS, but has not yet mastered all the power available to him.

This month, we begin covering one of those "power" features — device drivers. While powerful in function, device drivers are surprisingly easy to take advantage of.

Device Drivers

As we have talked about in earlier issues, a "device" is simply a piece of hardware attached to the computer. Once you've physically connected a device, you must logically attach it to MS-DOS. That is, you have to tell MS-DOS the device is there and supply it with the interface software. This interface software is called a "device driver."

MS-DOS has built-in standard device drivers for common devices such as the video display, keyboard and disk drives, so there is no need for us to supply one. Other devices such as mouse boards and network boards usually require a software driver.

Software drivers are generally supplied when you purchase the device. The Sanyo EHD-511 hard disk, for example, includes a device driver called EXTRAHD.SYS, which installs the hard disks as Drive E:. Other hardware items, such as a clock/calendar board, will have an appropriate device driver to tell the operating system to look for and utilize the device.

(Danny Humphress is the owner of a computer software and consulting firm in Louisville, Ky. Danny brings to SOFT SECTOR his extensive experience with small business computers and applications software.)

Device drivers are not just for add-on hardware devices, however. Some drivers are used to change the way a common device works. There are device drivers, for example, that allow you to set aside a portion of your computer's RAM and use it like a disk drive.

ANSI.SYS, probably the most common device driver, is used to make the video screen and keyboard behave like a standard ANSI terminal (American National Standards Institute). The standard Sanyo 550/555 operating system does not use ANSI.SYS as an external file, but rather has an abbreviated version built right into the DOS system files. Hence it does not need to be loaded separately. The Video RAM Board operating system, however, does use the ANSI.SYS driver (but remember that it's called ANSI55.SYS), and of course, so do all the other Sanyo MS-DOS machines.

Device drivers are not just for add-on hardware devices. Some drivers are used to change the way a common device works. ANSI.SYS, for example, is used to make the video screen and keyboard behave like a standard ANSI terminal. Device drivers are available which allow you to use part of your computer's RAM as a disk drive.

Installing A Device Driver

In order for your computer to recognize and use a particular device driver, you need to do two things. First, you must copy the device driver file to the root directory of your MS-DOS boot disk. Then, MS-DOS must be told the device is a part of its "configuration" when the system boots. This is done via the CONFIG.SYS file. (Sorry, but bear in mind that this is not supported under MS-DOS 1.25.)

While the filename CONFIG.SYS would lead you to believe it is a device driver, it is actually a file that lists the device drivers to be included in the system when it is booted. It is also used to set certain system parameters (more on that later).

When you turn on or reset your computer, the computer

looks for a CONFIG.SYS file on the boot disk for information about the system configuration. If there is no CONFIG.SYS on the disk, MS-DOS assumes a "standard" configuration, then goes on to the AUTOEXEC.BAT file (if one exists) or to the normal date and time questions.

If MS-DOS finds a CONFIG.SYS file, it uses it to set system parameters and to find the names of the device drivers it needs to load. If, for example, you used CONFIG.SYS to tell DOS that you're using the ANSI.SYS console driver, it would look for the ANSI.SYS file and load it into memory as part of DOS.

The CONFIG.SYS file may be created with the EDLIN line editor, with a COPY CON: [filename] command, or with just about any text editor. (For more information on EDLIN, see the "Mastering MS-DOS" columns in the November 1984 through February 1985 issues of SOFT SECTOR.)

The lines in a CONFIG.SYS file loosely resemble a programming language. Like a language, MS-DOS recognizes certain key words in the CONFIG.SYS file as having specific meanings. Briefly, the keywords recognized are: BUFFERS, FILES, BREAK, SHELL and DEVICE.

The DEVICE command is used to tell MS-DOS to load a certain device driver when MS-DOS is booted (started up). If we wanted the ANSI.SYS and EXTRAHD.SYS drivers to be loaded when we booted, we would need these two commands in the CONFIG.SYS file:

```
DEVICE = ANSI.SYS
DEVICE = EXTRAHD.SYS
```

The first thing MS-DOS will do after loading is to load ANSI.SYS and EXTRAHD.SYS into memory and attach it to DOS. These device drivers will be in effect until the system is re-booted or turned off.

It is important to remember that the commands in the CONFIG.SYS file are not in effect until you reset your computer. That is the only time MS-DOS looks at CONFIG.SYS and configures the system.

ANSI.SYS

By designing their programs to work with ANSI terminal standard commands, programmers can easily move their applications from one machine to another without having to worry about video display and keyboard differences.

The ANSI.SYS device driver makes your display and keyboard behave according to the ANSI standards. While the keyboard and display accept the ANSI control codes, their normal operation is not affected. That is, programs that are not designed to work with ANSI.SYS will not be affected by its presence.

Many programs require that you have the ANSI.SYS driver installed. To use them, you must make sure this line is part of your CONFIG.SYS file:

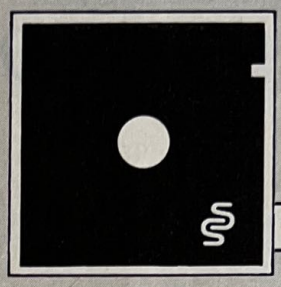
```
DEVICE = ANSI.SYS
```

Even if you aren't a programmer, ANSI.SYS allows you to do some really nice things such as changing the screen colors and defining function keys. Details on this next month.

The cheaper, faster companion method to Soft Sector programs!

Each and every month of the year, SOFT SECTOR offers an assortment of programs for the home and office — utilities, business applications, games and more — all for the price of typing in the listings. But for the person on the move, that's a high price to pay.

Our method for sure savings:



SOFT SECTOR ON DISK

Ask yourself how much your labor is worth. Five dollars an hour? $10? $20? Now ask yourself how many hours it takes to type in and debug just one of those wonderful (but long) programs from SOFT SECTOR. Think of it: Every program from the pages of SOFT SECTOR, ready to load and run with only a few keystrokes!

BACK ISSUES AVAILABLE

Several of the first issues of SOFT SECTOR are now out of stock, but the programs from those issues are available as back orders of SOFT SECTOR ON DISK, along with the accompanying text files of the articles ready to be routed to your screen or printer with a simple TYPE command. This may be your only chance to get the programs that you've missed.

Volume I contains programs from August, September and October 1984. Volume II contains programs from November and December 1984 and January 1985. All other copies of SOFT SECTOR ON DISK include programs from individual issues of SOFT SECTOR.

Now is your chance to make your Sanyo a full-time computer instead of a typewriter. Subscribe to SOFT SECTOR ON DISK today and give those weary fingers a break!

SOFT SECTOR ON DISK subscription rate is: within the U.S., $99; Canadian rate, U.S. $115; all other countries, U.S. $130. SOFT SECTOR ON DISK single volume rate is: within the U.S. $12; Canadian rate, U.S. $14; all other countries, U.S. $16. Subscription orders begin with the current issue, allowing 5 to 6 weeks for first delivery. **U.S. currency *only*, please.**

ONE-LINERS

Here we are again with more winners of The First Great SOFT SECTOR One-Liner Contest. The authors of these winning entries will receive a copy of the November edition of SOFT SECTOR ON DISK.

To briefly restate the rules of the contest, begin the program with the number one and end it in a single line. Anything else goes. Entries will be accepted in either Sanyo BASIC or GW-BASIC. Include a printed listing, a title for the program and a short explanation of what it does. Send it to The First Great SOFT SECTOR One-Liner Contest, P.O. Box 385, Prospect, KY 40059.

★★★★★

DODGEM

This is a simple game like *GoldMine* from SOFT SECTOR, October '84, except that points are earned by dodging all objects on the screen; in other words, you don't have to hit anything for points.

The program is designed to run in normal BASIC and requires a joystick. If you try to leave either side of the screen, you will reappear on the other side, often in front of a barrier. Good luck!

```
1 CLS:X=4Ø:FOR Y=1 TO 999:F=STICK(1):X=X
+(F<5Ø)-(F>15Ø)-((X<3)*7Ø)+((X>72)*7Ø):L
OCATE 25,INT(RND*76)+1,Ø:PRINT STRING$(3
,219):LOCATE 1,X:PRINT CHR$(2):IF COLOR(
X*8-4,1Ø)>Ø THEN PRINT E*999+Y:FOR T=1 T
O 16ØØ:NEXT:E=Ø:GOTO 1 ELSE NEXT:E=E+1:G
OTO 1
```

Matt Norby
Cleveland Heights, OH

★★★★★

HOME LOAN INTEREST

This one-line program will calculate the payment, interest, principal and remaining amount due of your principal for your home loan on a yearly basis.

```
1 INPUT"AMOUNT OF LOAN";A:INPUT"INTEREST
 RATE(%)";I:INPUT"NUMBER OF YEARS";Y:D=A
/((1-((1+(I*.Ø1))^-Y))/(I*.Ø1)):PRINT "Y
EAR","PAYMENT","INTEREST","PRINCIPAL","R
EMAING LOAN":FOR J=1 TO Y:Q=A*(I*.Ø1):P=
D-Q:A=A-P:PRINT J,D,Q,P,:PRINT USING "##
###.##";A:NEXT
```

Dale J. Billman
Scottsdale, AZ

★★★★★

REVERSE ELLIPSES

This program, using the LINE command, draws a series of ellipses counterclockwise. The final ellipses are the largest that can be drawn on the Sanyo. The color (K) adds variety but can be omitted for a monochrome monitor.

```
1 F=-.25467:A=.4:FOR I=1 TO 3:FOR J=1 TO
 9 STEP 2:K=INT(RND*7)+1:CLS:FOR S=Ø TO
27Ø STEP J:X=32Ø+A*99*COS(S*F):Y=1ØØ+99*
SIN(S*F): LINE(32Ø,1ØØ)-(X,Y),K:NEXT S:F
OR T=1 TO 1ØØØ:NEXT T:NEXT J:A=A+1.4:NEX
T I
```

Paul M. Bowen
South Pasadena, CA

★★★★★

PSYCHEDELIC SUNRISE

This program experiments with moire patterns and works best on a color monitor.

```
1 CLS:LOCATE 1,1:P=295:Q=1Ø7:FOR C=1 TO
6:FOR X=Ø TO 599 STEP 5:FOR T=Ø TO 1:COL
OR C:LINE(X+T,25)-(P,Q):LINE-(599-X-T,19
9):NEXT T,X:FOR Y=25 TO 199 STEP 5:FOR T
=Ø TO 1:LINE(599,Y+T)-(P,Q):LINE-(Ø,(199
-Y-T)+25):NEXT T,Y:P=P+1:Q=Q+1:NEXT:CIRC
LE(P,Q),27,,,,7
```

Raymond Richmond
Webster, NY

CHRYSON COMPUTER

SHIPPING CHARGES: PARCEL POST — $3.00 PER ORDER — FIRST CLASS PRIORITY MAIL — $5.00 PER ORDER — NO EXTRA COST FOR MASTERCARD or VISA

WE HAVE HARDWARE, SOFTWARE AND MOST COMPUTER ITEMS FOR IBM, APPLE, TI 99/4A, COMMODORE AND OTHERS

HARDWARE/PERIPHERALS/ACCESSORIES

VIDEO RAM BOARD, includes: GW Basic, MS-DOS version 2.11(VB), plus Manual, (these are the new REVISION #3 Boards) ..... CALL
NEW RAM BOARD, with added memory capacity ..... CALL
RS-232C Board, CONTEL ..... $ 70.00
MEMORY CHIPS, 128K, FIRST QUALITY $39.95
VOLKSMODEM, includes a $79.95 membership in THE SOURCE for $30) ..... $ 59.95
CABLE 'A', for above modem to SANYO ..... $ 9.95
JOYSTICKS, MACH-II ..... $ 32.95
MACH-III ..... $ 44.95
DUAL JOYSTICK ADAPTER ..... $ 25.45
JOYSTICK PACKAGE OFFER: TWO, MACH-III JOYSTICKS, plus the DUAL JOYSTICK ADAPTER $109.00
with MACH-II instead ..... $ 89.95
COMP-U-SERVE KIT, includes password and membership PLUS reference MANUAL and 5 FREE HRS. CONNECT TIME ..... $ 28.95
****MASTERPIECE****, by Kensington-30% OFF!! 5 in 1 unit is a MONITOR SWIVEL EMI/RFI FILTER/SURGE PROTECTOR, STATIC ELIMINATOR, 5 OUTLET/1 MAIN SWITCH $109.00

SUPER SUMMER SANYO SPECIALS
SOFTWARE

NORTON UTILITIES, allows you to EXAMINE AND CHANGE ANY PART OF YOUR DISK, CHANGE THE VOLUME LABEL WITHOUT ERASING THE DISK, UN-ERASE A LOST FILE, includes the main program PLUS 15 OTHER UTILITY PROGRAMS THAT MAKE THIS THE BEST SELLING UTILITY SOFTWARE ON THE MARKET TODAY ..... $ 75.00
PC LOGO, use HI-RES GRAPHICS, 8087 MATH CHIP COMPATIBLE and much more ..... $CALL

INFOCOM SOFTWARE SERIES OF INTERACTIVE FICTION, works on MBC series with or without the Video Board:

ZORK-1	$29.95	ZORK-2	$32.95
ZORK-3	$32.95	SUSPENDED	$36.95
SUSPECT	$34.95	STARCROSS	$35.95
DEADLINE	$36.95	ENCHANTER	$29.95

HITCHHIKERS GUIDE TO THE GALAXY $29.95
SEASTALKERS (for ages 9 and up) $29.95
INVISICLUES, provides clues, maps and other helpful ideas to solve each of the INFOCOM programs ..... $ 6.50

MORE SOFTWARE
MANUALS/SUPPLIES

TOTAL LEARNING SYSTEMS OFFERS THE FASTEST AND EASIEST METHOD TO LEARN MS-DOS, LOTUS 1-2-3, dBASE II, SUPERCALC AND MANY OTHER PROGRAMS. SPECIAL PRICING IN EFFECT THROUGH 8/31/85.
MS—DOS DISK plus WORDSTAR TAPE $29.95
(specify 1.25 or 2.11 when ordering)
TLS PLUS-PC version for MBC775 ..... $37.50
TUTORIALS FOR LOTUS 1-2-3, dBASEII, SUPERCALC, EASYPLANNER/FILER, CONDOR, CALCSTAR/ INFOSTAR $21.95
dBASEII (Expert edition) $29.95

MICHTRON-MINIMUM 20% OFF retail price!!!!
PICASSO ..... $75.95 MI-TERM $63.95
M-DISK ..... $26.50 MI-KEY $26.50
ALL OTHER TITLES AT SIMILAR SAVINGS!!!!

U.S. DIGITAL-PREP $49.95
CPeMulator ..... $79. COPYLINK $75.95

DISKETTES—all are DOUBLE SIDED, 10 per box
MEMOREX ..... $21.95 3M $20.00
(above prices valid only while supplies last)
KALEIDISKETTES, 10pk. plus MS-DOS Disk Tutor from TLS ..... CALL

MS-DOS 2.11, SANYOBASIC, DataStar, Report Star, etc. Reference Manuals - Call for best prices on these comprehensive manuals for your Sanyo!

CHRYSON COMPUTER - 109 LISA DRIVE - BROCKTON, MASS. 02402 - (617) 587-4639

SKETCH

The following one-line BASIC program allows you to sketch simple line drawings in any of the Sanyo's seven colors (use black for an eraser). When the program is RUN, it prompts you for a color number.

To draw, after you select the color for the next line, a graphic cursor is displayed on the screen. Move the crosshairs by pressing the appropriate arrow keys. To move the cursor eight pixels at a time, press the TAB key. Press RETURN to select the starting position of the line. Then select the ending position and press RETURN. The line will be drawn in the previously selected color and you will be asked to select a new color for another line.

```
1 CLS:WHILE A=Ø LOCATE 1,1,Ø:PRINT "COLO
R (Ø-7):";:A$=INPUT$(1):OUT 56,4:LOCATE
1,1:PRINT SPC(13);:C=VAL(A$):GCURSOR(X,Y
),(X1,Y1),2:PSET(X1,Y1),C:OUT 56,19:GCUR
SOR(X1,Y1),(X,Y),2:OUT 56,75:LINE(X,Y)-(
X1,Y1),C:WEND
```

Paul T. Miller
Wirtz, VA

★★★★★

STRAIGHT LINE FIT

This program, by means of a least squares analysis, will essentially find the best straight line fit to a given set of data points. The values obtained for the slope and Y-intercept can be used in order to predict new values of X or Y when one of these is known by use of the equation Y = MX + B, where M is the slope and B is the Y-intercept.

```
1 CLS:INPUT "ENTER NUMBER OF POINTS";N:P
RINT:DIM X(N):DIM Y(N):FOR I=1 TO N:INPU
T "ENTER X,Y";X(N),Y(N):X=X+X(N):Y=Y+Y(N
):D=D+(X(N)*Y(N)):E=E+(X(N)^2):NEXT I:M=
(D-(X*Y/N))/(E-(X^2/N)):B=(Y/N)-(M*(X/N)
):PRINT:PRINT"SLOPE = ";M:PRINT "Y-INTER
CEPT = ";B
```

Robert Blomquist
Elizabeth, NJ

★★★★★

SIMPLE TYPEWRITER

I call this one-line program *Simple Typewriter* because it allows the user to sit down and begin typing without having to set up a *WordStar* file (or whatever) when the need arises for a quick note or memo.

I set the line input to 79 characters to keep the cursor from moving to the next line (80 would fit on one line but this looks nicer on screen). One page will hold 59 lines before advancing to the top of the next page. All text remains on the screen until one page has been filled. The program then starts over, thus clearing the screen. A capital X in the far left column of any line will end the program.

```
1 CLS:PRINT TAB(3Ø)"SIMPLE TYPEWRITER":P
RINT TAB(29)"(ENTER -X- TO QUIT)":PRINT
:FOR LNCNT=1 TO 55:LINE INPUT (79)A$:IF
LEFT$(A$,1)="X" THEN END ELSE LPRINT A$:
NEXT :FOR X=1 TO 11:LPRINT :NEXT:GOTO 1
```

Jeff Erickson
Spokane, WA

We take the BYTE out of high prices!

Comp-U-Type

SOFTWARE

TURBO TUTOR	29
TURBO TOOLBOX	39
MULTIPLAN	129
PFS : WRITE	79
PFS : FILE	79
PFS : GRAPH	79
PFS : REPORT	79
PFS : PLAN	79
ACCOUNTS RECEIVABLE	69
ACCOUNTS PAYABLE	69
INVENTORY	69
GENERAL LEDGER	69
ORDER ENTRY	69
PAYROLL	69
RECRUITER	59
APPOINTMENT BOOK	39
PICASSO	79
FREEZE FRAME	34
TIME BANDIT	34.95
MAJOR MOTION	24.95
CASHMAN	34.95
DEMON SEED	34.95
MUDPIES	34.95
SOLITAIRE	34.95
SNARE THE SQUARE	29.95
MATH CASTLE	29.95
TRIVIA MANIA	34.95
STATES & CAPITALS	24.95

PRINTERS

PANASONIC KX-P1090	199
KX-P1091	269
KX-P1092	399
KX-P1093	649
OLYMPIA RO DAISYWHEEL	349
JUKI 6000 DAISYWHEEL	199
JUKI 6100 DAISYWHEEL	389
JUKI 6300 DAISYWHEEL	695
QUADJET INKJET COLOR	399

MONITORS

PANASONIC CT1300 RGB COLOR	259
SANYO 8112 GREEN	CALL
SANYO 8212 AMBER	FOR
SANYO CRT 30	BEST
SANYO CRT 36	PRICE
SANYO CRT 50 COLOR	CALL
SANYO CRT 70 COLOR	CALL

COMMUNICATIONS

VOLKSMODEM 300	59
CABLE FOR VOLKSMODEM	12
ANCHOR MARK X 300 BAUD	129
ANCHOR MARK XII 1200 BAUD	249
RS-232C PORT	49
COMPUSERVE STARTER KIT	29
THE SOURCE STARTER KIT	49
MI-TERM MODEM SOFTWARE	59

SPECIALS

128K RAM UPGRADE	24.95
TEAC 55B (360K DISK DRIVE)	109
TEAC 54A (160K DISK DRIVE)	39
MEMORY EXPANSION BOARD	CALL
VIDEO RAM BOARD	BEST PRICE
LOTUS 1-2-3	299.95
FLIGHT SIMULATOR	39.95
TURBO PASCAL 3.0	49.95

ACCESSORIES

KEYBOARD EXTENDER CABLE	9.95
COILED EXTENDER CABLE	12.95
PARALLEL PRINTER CABLE	24.95
RS-232 M TO M CABLE	23.95
TILT/SWIVEL STAND	19.95
DUST COVER SETS	CALL
NASHUA DS/DD DISKS	15.95
MAXELL DS/DD DISKS	24.95

MANUALS

WEBER MBC-550 USER'S GUIDE	15
WEBER MBC-550 BASIC GUIDE	15
WEBER BUSINESS PROGRAMS	15
SANYO BASIC REFERENCE	35
SANYO MS-DOS 2.11 MANUAL	49
SANYO WORDSTAR REFERENCE	35
SANYO REPORTSTAR REFERENCE	45
SANYO DATASTAR REFERENCE	30

MON - FRI 10 - 9
SATURDAY 9 - 9
SUNDAY 12 - 5

Comp-U-Type
P.O. Box 777, Millersville, MD 21108
A DIVISION OF GLOBAL CONSULTING INC.

1-800-545-1555

INQUIRIES & MARYLAND
(301) 987-1550
(301) 987-4272

ORDERING INFO: For shipping add 3% - $3.00 minimum. Visa and MasterCard add 3%. MD residents add 5% sales tax Personal checks - allow 7-10 days to clear NO CODs. No returns accepted without prior authorization. All returned merchandise subject to 15% restocking fee. Write for free Sanyo Catalog.

Changing Your Disk's Volume Label

By Tim Purves
Soft Sector Contributing Editor

Many of you may know that MS-DOS 2.11 allows you to give each of your disks a volume label when it is first formatted. This is done with the /V switch on the FORMAT command. When you are formatting a new disk and include the /V switch, MS-DOS will prompt you for a volume label up to 11 characters in length. From then on, each time you call a directory or perform a CHKDSK, the volume label will appear to let you know just which disk you are working with.

Also supported is the handy but little-known VOL command which will display the volume name of whichever disk is requested. If you forget which disk you have in drive B:, just type VOL B: and the operating system will tell you.

(Tim Purves is an expert on the Sanyo MBC-550/555 series computers and is an experienced programmer in assembly code, PASCAL, C and BASIC. He is available to answer any technical questions that the readers of SOFT SECTOR might have. All questions should be addressed to SOFT SECTOR, P.O. Box 385, Prospect, Ky. 40059.)

However, as handy as the volume labeling feature of MS-DOS 2.11 is, it has a single, very frustrating, deficiency. Once you have formatted the disk and affixed the label, there is no provision in the operating system for changing it without completely reformatting the disk.

Sanyo made an effort to overcome this deficiency of DOS by supplying a separate *Volume* program on their *MS-DOS 2.11 Utilities Disk*. Their *Volume* program looks for an existing volume label on the disk, deletes it, and then writes a new one. But due to a bug in MS-DOS 2.11, changing the label in this manner causes problems.

When MS-DOS deletes a volume label, it wipes out the FAT (File Allocation Table) entries for the first files on the disk. If you use Sanyo's *Volume* utility to change a disk label and then perform a CHKDSK on the disk, I guarantee you will encounter problems.

The problem, however, can easily be overcome. Rather than deleting the volume label and then writing a new one to the disk, the utility should *rename* the existing label. The VOLUME.COM file created by the following BASIC program does just that.

The BASIC Program

This simple BASIC program used to create the *Volume* utility is just one of a dozen different ways to create a .COM file from BASIC. This particular method is one that I developed because it is simple to change for new programs and provides an indication of which line number is in error if problems arise during file creation.

To describe how it works, I will first explain a .COM file. A .COM file is merely a binary image file with no loader information. The advantage of this type of program is that it loads quickly and takes less disk space. A .COM file also assumes that it will start execution at the first byte of the file, which is loaded at offset 100h. The bytes from zero to 0FFh are used and set up by the DOS to relay information to the executing program. Knowing all of this, we can take a program that is a .COM file and turn it into a BASIC program that can be printed in a magazine. Then when the program is typed in and run, it will re-create the original .COM file.

Line 40 of the accompanying BASIC program is used to open a file with a record length of one. This permits us to do single-byte I/O on the file.

Using The Volume Utility

Type in the accompanying BASIC program and run it. After it has created the VOLUME.COM file, you will have no need to ever run it again.

Then, from the DOS prompt, type VOLUME and the drive designator of the disk label that you wish to change: for example, VOLUME B:. The program will display the current volume label of the disk and ask for the new one. That's all there is to it.

The listing: VOLUME.BAS

```
10 ' create volume.com 08/20/85 Timothy Purves
20 CLS:PRINT "Volume Label program"
30 LOCATE 10,1:PRINT "Program by Timothy Purves":PRINT :PRINT "Creating File .."
;
40 OPEN"r",1,"volume.com",1
50 FIELD 1,1 AS A$
60 FOR X=0 TO 31
70 READ B$,SUM:LSUM=0
80 FOR Z=0 TO 15
90 TMP=VAL("&h"+MID$(B$,Z*2+1,2))
100 LSET A$=CHR$(TMP):LSUM=LSUM+TMP
110 PUT 1,X*16+Z+1
120 NEXT:PRINT ".";
130 IF LSUM<>SUM THEN PRINT "Error in Data, Line ";X*10+1000,LSUM
140 NEXT:CLOSE
150 PRINT " Completed.":END
1000  DATA "EB7C90FF000000000000800F3F3F3F3F", 1081
```

```
1Ø1Ø  DATA "3F3F3F3F3F3FØØØØØØØØØØØØØØØØØØØØ", 378
1Ø2Ø  DATA "ØØØØØØØØØØØØØØØØØØØØØØØØØØØØØØØØ", Ø
1Ø3Ø  DATA "ØØØØØØØØØØØØØØØØØØØØØØØØØØØØØØØØ", Ø
1Ø4Ø  DATA "ØØØØØØØØØØØØØØØØØØØØØØØØØØØØØØØØ", Ø
1Ø5Ø  DATA "ØØØØØØØØØØØØØØØØØØØØØØØØØCØØØØØ", 12
1Ø6Ø  DATA "ØØØØØØØØØØØØØØØØØØØØØ5EACØACØ75Ø2", 587
1Ø7Ø  DATA "FFE6E8Ø2ØØEBF48ADØB4Ø2CD21C3FCE8", 2643
1Ø8Ø  DATA "E8FFØDØA566F6C756D652Ø4C6162656C", 1654
1Ø9Ø  DATA "2Ø4368616E6765722Ø56312E3ØØDØA5Ø", 1Ø92
11ØØ  DATA "726F6772616D2Ø42792Ø54696D6F7468", 1528
111Ø  DATA "792Ø5Ø7572766573ØDØAØØ2EAØ5CØØA2", 1281
112Ø  DATA "ØAØ1BA34Ø1B41ACD21BAØ3Ø1B411CD21", 1319
113Ø  DATA "ØACØ75Ø3EB559ØE89ØFFØDØA44726976", 1845
114Ø  DATA "652ØØØAØØAØ1Ø44ØE88CFFE87CFF3A2Ø", 17ØØ
115Ø  DATA "4861732Ø6E6F2Ø4C6162656CØØE8CBØØ", 1484
116Ø  DATA "BE5DØ1BFØBØ1BBØBØØAC2AED8AC8BØ2Ø", 1682
117Ø  DATA "E3Ø2AC49AA4B75F6BAØ3Ø1B416CD21ØA", 1722
118Ø  DATA "CØ74Ø5E88CØØEBAFEB6A9ØE83CFFØDØA", 215Ø
119Ø  DATA "566F6C756D652Ø4C6162656C2Ø6F662Ø", 1421
12ØØ  DATA "647269766520ØØBE3BØ1ACØ44ØE827FF", 1586
121Ø  DATA "BØ3AE822FF56E811FF2Ø3D3E2ØØØ5EB9", 1811
122Ø  DATA "ØBØØACE811FFE2FAE86ØØØBE5CØ1ACAC", 2118
123Ø  DATA "8AC82AEDBF4CØ1BBØBØØBØ2ØE3Ø2AC49", 1765
124Ø  DATA "AA4B75F6BA34Ø1B417CD21ØACØ74Ø5E8", 1843
125Ø  DATA "2ØØØEBD4E8D3FEØDØAØA566F6C756D65", 1841
126Ø  DATA "2Ø4E616D652Ø4368616E676564ØDØAØØ", 1154
127Ø  DATA "CD2ØE8B5FEØDØAØA4261642Ø566F6C75", 1654
128Ø  DATA "6D652Ø4C6162656CØ7ØØC3E89CFEØDØA", 1589
129Ø  DATA "456E746572Ø4E65772Ø566F6C756D65", 15Ø4
13ØØ  DATA "2Ø4C6162656C2Ø2Ø2Ø3D3E2ØØØBA5CØ1", 1Ø42
131Ø  DATA "B4ØACD21C3D1D6AØ2B4688Ø75A5B59C3", 1927
```

Listing 2: VOLUME.COM Assembly Source Code.

```
; volume label change program, Tim Purves Ø8/2Ø/85
; this program has been tested a great deal
; It should work every time without destroying diskettes
;
; to make this program use the following
;
; masm volume;
; link volume;
; exe2bin volume volume.com
; del volume.exe
; del volume.obj
;
; no waranty expressed or implied
;
;
code    segment
        assume cs:code, ds:code
        org     1ØØh               ; std com file
start:
        jmp     over_data

fcb     db      -1,Ø,Ø,Ø,Ø,Ø,8  ; extended fcb for volume label
fcb_drive       db      Ø
        db      '???????????'    ; any ok
```

```
        db      30 dup (0)

dma     db      40 dup (0)
newnam  db      12,0,12 dup (0)

print:                  ; cute string print
        pop     si      ; get ret adr
prn:
        lodsb                   ; get next char
        or      al,al   ; is it EOS
        jnz     prn1            ; no print it
        jmp     si              ; return to caller
prn1:   call    printc
        jmp     prn
printc:
        mov     dl,al   ; dos print
        mov     ah,2
        int     21h
        ret

over_data:
        cld
        call    print   ; print sigon
        db      13,10
        db      'Volume Label Changer V1.0',13,10
        db      'Program By Timothy Purves',13,10,0
        mov     al,cs:byte ptr [5ch]    ; drive
        mov     fcb_drive,al
        mov     dx,offset dma   ; set dma address
        mov     ah,1ah
        int     21h             ; set dma addr
        mov     dx,offset fcb
        mov     ah,11h  ; check disk for volume label
        int     21h
        or      al,al
        jnz     nolabel ; create a new one
        jmp     found_one       ;else rename it
nolabel:
        call    print
        db      13,10
        db      'Drive ',0
        mov     al,fcb_drive    ; get drive number
        add     al,'@'          ; convert to letter
        call    printc
        call    print
        db      ': Has no Label',0
        call    getname         ; get label name

;
; this routine converts a string to a fcb type memory block
;
        mov     si,offset newnam+1
        mov     di,offset fcb+8
        mov     bx,11
        lodsb
        sub     ch,ch
        mov     cl,al
n0:
        mov     al,' '
```

```
        jcxz    n1
        lodsb
        dec     cx
n1:
        stosb
        dec     bx
        jnz     nØ
        mov     dx,offset fcb
        mov     ah,16h          ; create volume label
        int     21h
        or      al,al           ; success ??
        jz      n2                      ; yep!
        call    badmsg          ; error msg
        jmp     nolabel
n2:
        jmp     terminate

found_one:
        call    print           ; print old volume label
        db      13,1Ø
        db      'Volume Label of drive ',Ø
        mov     si,offset dma+7
        lodsb
        add     al,'@'
        call    printc
        mov     al,':'
        call    printc
        push    si
        call    print
        db      ' => ',Ø
        pop     si
        mov     cx,11
pØ:
        lodsb
        call    printc
        loop    pØ
p1:
        call    getname
;
; this routine converts a string to a fcb type memory block
;
        mov     si,offset newnam
        lodsb
        lodsb
        mov     cl,al
        sub     ch,ch
        mov     di,offset dma+7+11h
        mov     bx,11
p2:     mov     al,' '
        jcxz    eos
        lodsb
        dec     cx
eos:
        stosb
        dec     bx
        jnz     p2
        mov     dx,offset dma
        mov     ah,17h          ; attempt rename
        int     21h
```

```
            or      al,al           ; succsess?
            jz      p3              ; yep!
            call    badmsg  ; error msg
            jmp     p1

terminate:
p3:         call    print
            db      13,1Ø,1Ø
            db      'Volume Name Changed',13,1Ø,Ø
            int     2Øh             ; back to dos

badmsg:
            call    print           ; print error msg
            db      13,1Ø,1Ø
            db      'Bad Volume Label',7,Ø
            ret

getname:
            call    print
            db      13,1Ø
            db      'Enter New Volume Label   => ',Ø
            mov     dx,offset newnam
            mov     ah,Øah
            int     21h
            ret

code        ends
            end     start
```


Does your current communications software fit you like a straitjacket?

Switch to the program that already has hundreds of satisfied users flexing their muscles in five different countries.

VersaCom is a sophisticated terminal emulation program originally designed for use by computer professionals. Version 2 of VersaCom provides new features, like extensive on-line help and tutorial programs, that make it ideal for use by computer novices too. Other advanced features include:

true, fast vt52 and vt100/vt102 emulation; lots of programmable keys; large capture buffer; powerful macro programming language; execution of DOS commands from within VersaCom; Xmodem file transfer protocol; Kermit file transfer protocol with wild card file naming and advanced server operation; ASCII file dump and capture; print screen function; background print spooler; and much more...

VersaCom v.2 (Sanyo MBC-550 or IBM PC) ... $55
VersaCom v.2 with Comtel serial port $95
300/1200/2400 baud modems ..... call

plus $5 shipping handling - Visa/MasterCard accepted

trade in your inferior communications software for a $15 discount

Solution Software, 3421 N 1st Ave. #120
Tucson, AZ 85719 ** (602) 323-0841

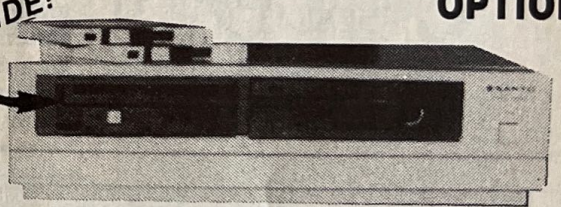
If not satisfied with VersaCom, return undamaged software and documentation within 30 days for a complete refund.

NOW AVAILABLE

5 Megabyte Cartridge Drive for the SANYO MBC-550

PLUS 512KB. MEMORY EXPANSION OPTION

IT'S INSIDE!



SPC has been delivering internal and external hard disk systems for the **550** since early 1984, and now offers up to 512Kb. memory on our new controller card. If your application requires higher capacity fast-access on-line storage plus larger main memory (up to 740Kb.), **SPC** has the *cost-effective solution*. Our removable cartridge has the convenience of a floppy with 15 times the capacity and 10 times the speed. Why spend more on enhanced floppy disks when the final answer is a Winchester... it's inevitable!

SPC has the largest variety of systems from which to choose and each can be expanded at a later date. Our top-of-the-line includes **FIXED/REMOVABLE** combinations in a color-coordinated cabinet, with maximum capacities above 120Mb. All systems are warranteed for one year and are upwardly compatible with other Sanyo computers and PC emulations.

Prices start at $795, and if you already own a bare Winchester of any type, **SPC** offers the **DISKIT $SAVER KIT** for only $695 (qty. 1). Call now to take advantage of special prices currently in effect. We'll enjoy discussing your requirement, and DISKIT.

SYSTEMS PERIPHERALS CONSULTANTS
9747 Business Park Avenue
San Diego, CA 92131
(619) 693-8611

SOFT TALK

The following products recently have been received by SOFT SECTOR, examined by our magazine staff and approved for the *Soft Sector Seal of Certification*, your assurance that we have seen the product and have ascertained that it is what it purports to be.

FOLLOWING THE TREND. There is now an investment program for the Sanyo 555 computers called *Market Trend Analysis*. This program digests numerous market indicators, evaluates the direction of movement and relative magnitude and weighs them according to historical impact on the market. The program then summarizes for you: the trend of individual indicators; the trend of the general market; the trend of interest rates; and what the important timing indicators are projecting.

In addition, *Market Trend Analysis* gives you the ability to view, graphically, the movement of the market indicators for the past year as compared to the Dow Jones Industrial Average for the same period.

Market Trend Analysis is currently available for $249 from ElectriCom Resources Co., P.O. Box 51180, Raleigh, NC 27609; (919) 872-5365.

* * *

WILDCARD is a collection of utilities which was designed to get maximum use from MS-DOS. These utilities act as filters and output from a program can become input to another *WildCard* program. The result can be sent to a file, the screen or your printer. These tools work with all text files, PASCAL or C programs and even *WordStar* files and BASIC programs saved in ASCII.

WildCard allows you to page, print, combine, merge and cross-reference your files. There is also a file inclusion facility and an on-line calculator.

WildCard requires DOS 2.11 and is currently available for $39.95 from Prickly-Pear Software, 2640 N. Conestoga Ave., Tucson, AZ 85749; (602) 749-2864.

* * *

VIKING II is a simulation of running a Viking land holding in the year 750 A.D. The object is to advance through the various ranks and become King or Queen. In pursuit of this objective you must buy and sell land and grain, set taxes, invest in markets, armories and boats. You will encounter problems such as raiders, disease and social unrest.

Viking II comes with an "interactive option", a save game feature and allows one to four players. It is currently available for $34.95 from Prickly-Pear Software, 2640 N. Conestoga Ave., Tucson, AZ 85749; (602) 749-2864.

* * *

A DIFFERENT DIALECT. There is now a book available which teaches assembly language programming. To use this book, you must first be familiar with one high-level language such as BASIC, PASCAL or FORTRAN. It is sequenced and paced so that it can be used by novice and expert alike. Emphasis is placed on the system debugger as the Input/Output device. The debugger allows you to examine the contents of memory locations and registers as well as alter them during execution.

Machine code translations of assembly

Submitting Material

Contributions to SOFT SECTOR are welcome from everyone. We like to run a variety of programs which will be useful/helpful/fun for other Sanyo owners.

• **FORMAT:** Unless the program accompanying your submission is less than 10 lines, we must have the program itself on disk. We will print out the listing to our specifications. We simply cannot take the time to key in (and debug our typing errors) material which is longer than that. Editorial copy can also be included on disk, using any of the word processors currently available for the Sanyo 550, 555 or 775. However, please also include a double-spaced hard copy of your editorial material and hard copy of your program listing. Please do not send text in all capitals. Use upper- and lowercase. While it is a big help to us in typesetting for you to send your article saved on disk using the ASCII option, it is not mandatory. But we must have, at the very least, a double-spaced hard copy of the article.

• **WHAT TO WRITE:** Anything with a practical application. If it interests you, it will probably interest a lot of others. However, we vastly prefer articles with accompanying programs which can be entered and run. We can prepare finished tables, diagrams and schematics from your rough draft *if* you provide legible copy and full directions. We have a continuing need for short articles with short listings.

We do pay for submissions, based on a number of criteria. Those wishing remuneration should *so state* when making submissions.

For the benefit of those who wish more detailed information on making submissions, please send an SASE to: Submissions Editor, SOFT SECTOR, The Falsoft Building, P.O. Box 385, Prospect, KY 40059. We will send you comprehensive guidelines.

Please do not submit programs or articles currently submitted to another publication.

programs are described in separate sections so you can see what actually happens at the machine level.

Assembly Language & Systems Programming for the IBM PC and Compatibles is currently available for $16.95 from Little, Brown and Company, 34 Beacon Street, Boston, MA 02106.

* * *

BASIC TOOLS. The *BASIC Programmer's Toolkit* is a package of five programs designed to assist the BASIC programmer. Included is: *PF-Define, BASIC File Lister, BASIC Cross-Reference, Number Erase and Number Replace.* This is not a BASIC primer although the manual assumes as little as possible to allow for the novice.

The *BASIC Programmer's Toolkit* is currently available for $39.95 from MVP Software, 1035 Dallas SE, Grand Rapids, MI 49507; (616) 245-8376.

* * *

MAIL-SORT is a menu-driven data entry program. It follows U.S. Postal regulations on bulk mail presort rules to send mail below normal rates. Qualifying entries can be sent for up to five cents below regular rates.

Features of *Mail-Sort* include deletion by name or ZIP code, label and hard copy printouts, floppy-to-hard disk merging, hard disk-to-floppy back up and print spooling.

Mail-Sort requires DOS 2.11 and 256K. It is currently available for $99 (owner's manual, $10) from Lubbock Software, P.O. Box 220077, El Paso, TX 79913; (915) 581-0869.

* * *

CHECKS & BALANCES is a program which can help you manage your checkbook, track your finances and generate totals for tax time. This program allows you to: keep track of your checkbook for a full year at a time; categorize all of your income and expenses for tax purposes and monitor your financial status; keep track of your bills, assets and liabilities; print checks with your computer; look up any transaction by number, category, payee or memo; generate detailed reports on all or any part of your checkbook plus income/expense statements; print mailing labels, rolodex cards or 3 by 5-inch cards from the built-in "Rolodex" database; manage as many checkbooks as you wish and more.

Checks & Balances is written in assembly language, is command driven, allows you to change anything you would like as with a word processor and sets the screen up to look like a checkbook.

Checks & Balances requires 190K and is currently available for $74.95 from CDE Software, 948 Tularosa, Los Angeles, CA 90026; (213) 661-2031.

* * *

The *Seal of Certification* program is open to all manufacturers of products for Sanyo MBC-550/555 and 775 computers, regardless of whether they advertise in SOFT SECTOR.

By awarding a *Seal*, the magazine certifies the product does *exist* — that we have examined it and have a sample copy — but this *does not* constitute any guarantee of satisfaction. As soon as possible, these hardware or software items will be forwarded to SOFT SECTOR reviewers for evaluation.

SUBSCRIPTION INFORMATION

Your copy of SOFT SECTOR is sent second class mail. If you do not receive your copy by the 15th* of the month of the cover date, send us a card and we will mail another. *Canadian subscribers and foreign air mail allow two additional weeks.

You must notify us of a new address when you move. Notification should reach us no later than the 10th of the month prior to the month in which you change your address. Sorry, we cannot be responsible for sending another copy when you fail to notify us.

Your mailing label also shows an "account number" and the subscription expiration date. Please indicate this account number when renewing or corresponding with us. It will help us help you better and faster.

For Canadian and other non-U.S. subscribers, there may be a mailing address shown that is different from our editorial office address. Do not send any correspondence to that mailing address. Send it to our editorial offices at The Falsoft Building, P.O. Box 385, Prospect, KY 40059.

soft sector

Back Issue Availability

Back copies of many issues of SOFT SECTOR are still available.

All back issues sell for the single issue cover price. In addition, there is a $2 charge for the first issue plus 50 cents for each additional issue mailed in the U.S. When possible, issues are mailed UPS. The postage cost in Canada and Mexico is $3 for the first issue and $1 for each additional issue.

VISA, MasterCard and American Express accepted. Kentucky residents please add five percent state sales tax. In order to hold down costs, we do not bill and no C.O.D. orders are accepted.

We suggest you order back issues you want now while supplies last.

To order, just fill out the form on the next page and mail it with your payment to:

Soft Sector
The Falsoft Building
P.O. Box 385
Prospect, KY 40059

BACK ISSUE ORDER FORM

☐ Please send me the following back issues:

(Payment must accompany back issue orders.)

NO.	MON.	YR.		PRICE	
			VOLUME 1		
1	AUG.	'84	PREMIER ISSUE	$3.00	☐
5	DEC.	'84		$3.00	☐
6	JAN.	'85		$3.00	☐
7	FEB.	'85		$3.00	☐
8	MAR.	'85		$3.00	☐
9	APR.	'85		$3.00	☐
10	MAY	'85		$3.00	☐
11	JUNE	'85		$3.00	☐
12	JULY	'85		$3.00	☐
			VOLUME 2		
1	AUG.	'85		$3.00	☐
2	SEPT.	'85		$3.00	☐
3	OCT.	'85		$3.00	☐
4	NOV.	'85		$3.00	☐

TOTAL _____

SHIPPING & HANDLING* _____

KY RESIDENTS ONLY ADD 5% _____

TOTAL AMOUNT ENCLOSED _____

* See reverse side. **Save money on back issues. See the binder ad on Page 49.**

NAME _____ ADDRESS _____ CITY _____ STATE _____ ZIP _____

☐ PAYMENT ENCLOSED OR ☐ CHARGE TO: ☐ VISA ☐ MC ☐ AE

SIGNATURE _____ CARD # _____ EXPIRATION DATE _____ PHONE # _____

CLUBS

We are compiling a list of Sanyo Users Groups in order that you can find those closest to you and also that they may exchange newsletters, share ideas for topics of discussion at monthly meetings, etc.

Please let us know if we have omitted any clubs and send us complete up-to-date addresses. Also, please notify us if you wish to add or delete any names on this list. Send your information to:

SOFT SECTOR
The Falsoft Building
P.O.Box 385
Prospect, KY 40059

ALABAMA

Sanyo Users Network, Robert Buster, P.O. Box 4053, Birmingham, AL 35206, (205) 838-2506

Mobile Sanyo Users, Carol Walding, P.O. Box 8505, Mobile, AL 36689

ARIZONA

Sanyo Users Group of Arizona (SUGAR), Fred DeBari, P.O. Box 8316, Mesa, AZ 85204, (602) 892-8229

Tucson Sanyo Users Group, Julie Ingham, Arizona Micro Exchange, 1927 E. Speedway, Tucson, AZ 85719

CALIFORNIA

Sanyo Users Group of Southern California, Sandy Sigal CFR Group, 4441 Sepulveda Drive, Culver City, CA 90230, (213) 390-8591

Eureka California SUG, Dave Brawdy, 7025 Humbolt Road, Eureka, CA 95501

Sanyo Mis/Dos Users Group (S.M.U.G.), George D. Blair II, 14717 S. Prairie Ave., Lawndale, CA 90260, (213) 973-6888

Sanyo PC Hackers (International), Cal Lindell, 12155 Edgecliff Pl., Los Altos Hills, CA 94022, (415) 941-2796

Sanyo Users Group Los Angeles, John Tripp, P.O. Box 38565, Los Angeles, CA 90038, (213) 851-4444

Pomona Valley Sanyo Users Group, Don Bowen, 1017 W. Flora Street, Ontario, CA 91762, (714) 983-5269

Sacramento Sanyo Users Group, Randy Jones, P.O. Box 660216, Sacramento, CA 95866-0216, (916) 362-8305

Sanyo SIG of San Diego, John Will, P.O. Box 90195, San Diego, CA 92109, (619) 268-7773

BASUG (Bay Area Sanyo Users Group), Scott Burry, 5840 Geary Blvd. #100, San Francisco, CA 94121, (415) 928-2051

Bay Area Sanyo Technical and Research Division, Ken Taylor, 4008 Pasadena Drive, San Mateo, CA 94403, (415) 345-7781

Sanyo PC Users Group, Allan Senkow, 22578 Honnold Dr., Saugus, CA 91350

COLORADO

Denver Area Sanyo Users Group, Jerry W. Smith, 9997 West 85th Avenue, Arvada, CO 80005, (303) 424-7499, modem (303) 431-0051

D.C.I. Computer Club, Ed Allburn, Buckingham Square Shopping Center, 1377 B South Joliet, Aurora, CO 80012, (303) 337-7108

Sanyo Computer Club, Norman R. Martell, 6651 Metropolitan St., Colorado Springs, CO 80911, (303) 392-9826

CONNECTICUT

New England Sanyo Users Network, Sid Shore, Sharon Valley Road, P.O. Box 603, Sharon, CT 06069

FLORIDA

Sanyos of Saramana (S.O.S.), Bill Harrier, 4411-100th Street West, Bradenton, FL 33507-1619

Micro's Etc. Sanyo Club, Joe Lewis, 233 Shady Hollow, Casselberry, FL 32707

PC Users Group of Florida, Sanyo Special Interest Group (Sanyo/SIG), Peter Cooke, P.O. Box 9266, Ft. Lauderdale, FL 33310-9266

Brevard Users Group/MS-DOS SIG, John Oborn, P.O. Box 2111, Satellite Beach, FL 32937

Sanyo Computer Club, Peyton Yon, 5610 4th St. North, St. Petersburg, FL 33703, (813) 526-6304

Bay Area Sanyo Enthusiasts, Inc. (B.A.S.E.), Dave Robbins, P.O. Box 350104, Tampa, FL 33695-0104, (813) 968-1460

GEORGIA

Atlanta Sanyo/555 Users Group, Robert Orr, 600 King Arnold St., Atlanta, GA 30354, (404) 768-1400

CSRA Sanyo Users, Amos Patterson, P.O. Box 5776, Augusta, GA 30906

HAWAII

Hawaii Sanyo Users Group, Jerry Sobocienski, 94-450 Kiilani St., Mililani, HI 96789

IDAHO

Boise Sanyo Users Group, Jim Puett, 1855 Waltman Street, Meridian, ID 83642, (208) 888-4873

Canyon Computer Club, Erwin B. Beckman, 123 22 Avenue S., Nampa, ID 83651

DE-BUG, 2038 Center Avenue, Payette, ID 83661, (208) 642-7257

ILLINOIS

Sanyo Mid-Illinois Users Group, John Campbell, 3308 E. Washington St., E. Peoria, IL 81811, (309) 699-2341

Great River Microcomputer Users Group (GRMUG), David N. Wexler, 47 Lake Drive S., RR #9, Quincy, IL 62301, (217) 222-2343

or

Lon Moeller, 1226 Daniel Ct., Quincy, IL 62301, (217) 223-5891

INDIANA

Bloomington Area Sanyo Users Group, Jerry Farnsworth, 6161 N. Shuffle Creek Road, Unionville, IN 47468, (812) 336-1184

Indiana Sanyo Users Group, Janet Milenki, P.O. Box 48, New Castle, IN 47362, (317) 529-0526

KENTUCKY

Fort Knox Sanyo Users Group, LTC Patrick G. Dealtry, 1436B 5th Ave., Ft. Knox, KY 40121, (502) 942-7606

OK-Sanyo Users Group, Eric T. Costello, 2395 South Main St., Highland Heights, KY 41076, (606) 441-4359

Kentucky Area Sanyo Society, Bob MacDonald, Route 1 Box 859, Lewisport, KY 42351

Sanyo Users Quad Society, Jim Grote, P.O. Box 240, Milton, KY 40045, (502) 268-3321

MARYLAND
Baltimore Sanyo Users Group, Mark Kurzmack, 809 W. Barre, Baltimore, MD 21230, (301) 752-2223

Sanyo Users Group, Atul Jai, 12613 Brunswick Lane, Bowie, MD 20715

Sanyo Users Group, Roger Moos, P.O. Box 1825, Rockville, MD 20850

MASSACHUSETTS
Sanyo New England, Donald H. Wetzel, 99 School Street, Weston, MA 02193, (617) 891-1238

MICHIGAN
Michigan Sanyo Users (M.S.U.), Lawrence Macionski, P.O. Box 71651, Madison Heights, MI 48071

S.U.G.G.E.S.T. Sanyo (Special Users Group Gathering Enjoying Sanyo Technology), Ralph Landry, Michigan Software, 43345 Grand River, Novi, MI 48050, (313) 348-4477

MISSISSIPPI
Mississippi Gulf Coast Sanyo Users Group, Gary Secunda, 103 McGuire Drive, Long Beach, MS 39560, (601) 863-6359

MISSOURI
MOARK-Sanyo Users Group, Marshall B. Turner, P.O. Box 504, Golden, MO 65658, (417) 271-3293

NEBRASKA
SLUGO (Sanyo Local Users), Herb Hickman, 2521 S. 132nd St., Omaha, NE 68144, Voice: (402) 330-0920, Modem: (402) 453-0914

NEW MEXICO
Border User Group — Sanyo (B.U.G.S.), Albuquerque, NM Chapter, Brian Freeman, Coordinator, 44 Calle Loma Parda NW, Albuquerque, NM 87120, (505) 831-5029

Border User Group — Sanyo (B.U.G.S.), Las Cruces, NM Chapter, Bo Barry, President, 1967 Defiance Ave., Las Cruces, NM 88001

NEW YORK
New York Sanyo Users Group, Patrick Yanez, P.O. Box 182, Brooklyn, NY 11217, (718) 855-9029

Long Island Computer Association/Sanyo Users Group, Herbert Jaffe, 57 Elinor Place, Freeport, NY 11520, (516) 868-7461

Upstate Sanyo Users Group (UPSUG), Gary D. Murphy, 2988 Cuylerville Rd., Leiscester, NY 14481, (716) 382-3467

Poughkeepsie S.U.G., Eugene Warfel, Oakwood School, Poughkeepsie, NY 12601, (914) 462-7434

NORTH CAROLINA
J.A.C.P.O.T. (Jacksonville Area Computer Programmers and Organized Telecommunications), Keith A. Hylton, 127B Henderson Drive, Jacksonville, NC 28540, (919) 347-7007

Sanyo CP/M-MS/DOS Group, John L. Johnson, 707 Edge Hill Road, New Bern, NC 28560, (919) 638-6976

Triangle Sanyo Users Group, Amnon Nissan, 1603 Jones Franklin Road, Raleigh, NC 27606, (919) 851-7609

OHIO
Sanyo Users Of Central Ohio, 5760 Crawford Drive, Columbus, OH 43229, (614) 846-3330

Dayton Area Sanyo Users Group, Mel Lammers, 4201 Rushmore, Dayton, OH 45430, (513) 426-7169

Greenville Users Group, John Desmond, c/o Hansbarger's, 1119 Dayton Road, Greenville, OH 45331, (513) 548-3174

Cincinnati Sanyo Users Group, Tim Mullen, 336 Miami Valley Drive, Loveland, OH 45140, (513) 831-6799

Akron Sanyo Computer Club (ASCC), Bruce Creager, 5425 Diana Lynn Dr., Stow, OH 44224, (216) 655-2371

Sanyo Users Group/Toledo Area, Daniel J. Kuna, Ph.D., 820 Security Bldg., 243 North Huron, Toledo, OH 43604, (419) 244-4423

Youngstown Users Group, George Beelen, 817 Washington St., Youngstown, OH 44520, (216) 545-0824

Sanyo PC Users Group, Roger Wilcox, 425 Woodlawn Avenue, Zanesville, OH 43701

OKLAHOMA
OKSUG (Oklahoma Sanyo Users Group), Steve Garman, 7701 N. Broadway A-6, Oklahoma City, OK 73116, (405) 842-3236

OREGON
Northwest Sanyo Enthusiasts (NWSE), George Sipes, P.O. Box 66173, Portland, OR 97266, (503) 658-5490

PENNSYLVANIA
P.L.U.G., Scott Higgs, 316 Locust Ave., Ardmore, PA 19003, (215) 642-0288

Lehigh Valley Users Group, John Orlando III, 1111 Mica Circle, Bethlehem, PA 18017, (215) 691-2794

TEXAS
Amarillo Area Sanyo Users Group, Les Sparks, Box 2052, W.T. Station, Canyon, TX 79016, (806) 622-0547

HOUston Sanyo Business Users Group, Steve Solomon, 7950 Bellfort Avenue #37, Houston, TX 77061, (713) 644-1135

Sanyo Users of Houston Computers for Business, Melba Stone, 6680 Highway 6, South, Houston, TX 77083

West Houston Sanyo Users Group, Frank Havel, 20203 Kempsford Court, Katy, TX 77450, (713) 492-7369

North Texas Sanyo Users Group, Jerry R. Barnes, 637 Pinehurst Dr., Richardson, TX 75080, (214) 783-9147

San Antonio Sanyo Users Group, Gary E. Joslyn, P.O. Box 2636, Universal City, TX 78148-1636

UTAH
Sanyo Users of Provo Utah Region (S.U.P.U.R.), Lloyd Finlinson, P.O. Box 556, Provo, UT 84603, (801) 224-7550

Salt Lake Sanyo Users Group, Thomas Berg, 4346 Fortuna Way, Salt Lake City, UT 84124, (801) 272-4743

VIRGINIA
Washington Area Computer Users Group, Edward Cavert, 4032 Hadley Lane, Fairfax, VA 22032

Tidewater Virginia Sanyo Users Group, Tom Hardes, 4137 Virginia Beach Rd., Virginia Beach, VA 23452, (804) 463-2028

Peninsula Sanyo Computer Group, Jeanne Robeson, P.O. Box 1284, Yorktown, VA 23692

WASHINGTON
Sanyo National Users Group (S.N.U.G.), Michael Russell, P.O. Box 2084 CS, Pullman, WA 99163, (509) 878-1714

Spokane SNUG LUG, Doug Vanderlaan, P.O. Box 11998, Spokane, WA 99211

Puget Sound Sanyo Users Group, Charlie Quante, 1804 S. 19th, Tacoma, WA 98405

Sanyo Northwest Users Group (S.N.U.G.), Alma Greenwood, 706 Dennis Street SE #9, Tumwater, WA 98501, (206) 357-7208

CANADA
Sanyo Users Group, Trekker Armstrong, 934 5A Street NW #A, Calgary, Alberta, Canada T2N 1R4

Sanyo Canadian Users Group, Eric Lillius, Box 210 Mountain Street, Haliburton, Ontario, Canada K0M 1S0, (705) 457-2774

Sanyo Microcomputer Users Group (SMUG), Cavan Kelly, 116 Phillip Ave., Scarborough, Ontario, Canada M1N 3R4

S.V.I.T., 116 Phillip Ave., Scarborough, Ontario, Canada M1N 3R4

P.P.G. Canada Inc., Rob Murray, 456 Albert Street, Strathroy, Ontario, Canada N7G 3J1

Montreal Users Group, Richard Bertrand, 10842 Rue Ethier, Montreal, Quebec, Canada H1H 3G4

FRANCE
Sanyo-Club, Philippe Chardon, 1, Rue de Clementville, 34000 Montpellier, France

JAPAN
Okinawa Sanyo Users Group, Craig D. Veal, PSC 2 Box 14345, APO SF 96367

NEW ZEALAND
Sanyo Users Group NZ, Noel Weeks, P.O. Box 28-335, Remuera, Auckland 5, New Zealand

WEST GERMANY
Central European Sanyo Users Group (CESUG), 2 Lt. David A. Ferreira, P.O. Box 3101, APO NY 09109-5370

Sanyo Bulletin Board Systems

CALIFORNIA
29 Palms, 300 Baud, 24 hours, (619) 368-3839

Sanyo SIG/San Diego, 300/1200 Baud, Evenings, (619) 454-8876

COLORADO
Sanyo BBS, 300/1200 Baud, 24 hours, (303) 762-9122

FLORIDA
Micro's Etc., 24 hours, (305) 831-1679

Software Connection, 300/1200 Baud, 24 hours, (813) 526-1644

ILLINOIS
NationServ, 300/1200 Baud, 24 hours, (618) VIP-2291

KANSAS
Bit Bucket, 300/1200 Baud, 24 hours, (316) 343-8028

Blustem Telecom, 300 Baud, 24 hours, (316) 321-5072

MICHIGAN
Computers U.S.A., 300/1200 Baud, 24 hours, (313) 547-5414

Level IV Products, 300/1200 Baud, 24 hours, (313) 525-3040

Mt. Clemens Download, 300/1200 Baud, 24 hours, (313) 286-6333

Novi Download, 300/1200 Baud, 24 hours, (313) 348-4479

Sanyo Centre, 300 Baud, 24 hours, (313) 398-0996

NEW MEXICO
B.U.G.S. FidoNet, 300/1200 Baud, 10 p.m.-10 a.m., (505) 822-8268

Teachers Pet, 300/1200 Baud, 24 hours, (505) 646-5194

NEW YORK
METRO BBS, 300/1200 Baud, 24 hours, (718) 596-5802

OHIO
Tri-County Users, 300/1200 Baud, 24 hours, (216) 331-5620

TENNESSEE
Rock City Student BBS, 300/1200 Baud, 24 hours, Data: (615) 875-6311, Voice: (615) 877-3097

UTAH
The Beehive, 300 Baud, 24 hours, (801) 392-6646

WASHINGTON
Missing Link, 300/1200 Baud, 24 hours, (206) 878-1823

CANADA
Windsor Canada, 300 Baud, 5 p.m.-12 p.m., (519) 254-2459

Nova Scotia, Basic Computer Sales, 300/1200 Baud, 6 p.m.-8 a.m., Atlantic Standard, (902) 454-8344

BUSINESS SECTOR

CHARLOTTE & BRIAN STONE
Soft Sector Contributing Editors

(Charlotte Stone, office manager for the Detroit office of the Shaw / Walker Co., has been using a Sanyo computer in her daily work routine since October of 1983. Brian Stone has been using a variety of Sanyo computers since May of 1983. Charlotte and her husband, Brian have been involved with computers since their first purchase in July of 1978. They presently own and use five computer systems, three of which are Sanyos, on a daily basis.)

Q. *How can I install* WordStar *to allow me to use the built-in bold and double-strike functions of my Okidata 92 rather than the multi-pass functions as are used now? I do not want to use the user patch areas because I am already using them. Also, how can I get* EPSONSD.COM *or* OKISD.COM *to work with my printer?*

Rupert Pupkin
Vancouver, B.C., Canada

A. Regarding the use of the Okidata 92's built-in functions for bold and double-strike printing without using the "user patches," you could use the ribbon change and the phantom character toggle which are available from the installation menu.

It would seem that getting your printer to print a screen dump of graphics will require the rewriting of the EPSONSD .COM or OKISD.COM programs. The reason being, the Epson version, as you stated, is for the MX-100 and the Okidata version is for the Microline 83a only. There are dealers who advertise screen dump programs in SOFT SECTOR which may suit your needs. You should check with some of them to see if their program will work with your printer. Graphics are always printed unidirectionally so that the results will have better registration on the paper. The extra space on your printout looks like you may have a linefeed or linefeed/carrige return switch in the wrong position.

Q. *I would like to get* WordStar *to default to a left margin of 12 spaces, 78 character line length and a right margin of 12 characters. I use a Prowriter 8510a in 12 pitch and this gives me pleasing print quality and more words per line. Every time I use the* Install *program this way and then go to use* WordStar, *it gives me a maximum of 76 characters, not the 78 that it is set for. Changing the margins with ^OR works perfectly. Is there a patch to fix this?*

Robert H. Hunter
Las Cruces, NM

A. I just spent quite a bit of time experimenting with the *Install* program for *WordStar* trying to set the width to 78 columns and had the same luck you had. I do not know the reason for this but *WordStar* must have something that sets the maximum default to 76 columns. Since you are just two columns short of what you want, I would suggest that as long as it is only for letters that you desire the extra two columns, you could do without them. If this is not satisfactory, one of our readers may have solved this problem and can advise us how they did it.

Q. *I am struggling to get my Comrex printer (CR-1 ComRiter) to give me true subscript and superscript as well as alternate pitch (12 pitch) but am unable to do so. I can boldface without problems. I tried the advice you gave to one of your readers who had a Comrex CRII and had similar problems. You suggested installing it as a Diablo-Xerox 1610/1620 but this did not work for me. I have tried several of the standard printer menu installations without success. Can you suggest a solution?*

Abraham Verghese, MD
Brighton, MA

A. I am not sure which daisy wheel printer your Comrex CR-I ComRiter printer emulates, but you could install a copy of *WordStar* for the Diablo 630 printer to see if that driver will work correctly. According to the copy of the manual you sent, your printer will super- and subscript. If one of the Diablo selections does not work, your only choice is to try each of the daisy wheel choices on the menu until you find one that works. My best guess is the Diablo because most manufacturers use these codes. If that option fails, you could install the codes to do $^{1}/_{12}$ inch forward or reverse linefeeds to get super- or subscript from the ribbon select and the phantom character selections with the *Install* program. To get alternate pitch, just install the codes from your manual with the *Install* program.

Q. *I have several lengthy inventory databases in* InfoStar *files. I coded my data entries as numbers (e.g., in stock=1, sold=2, etc.), and have these legends on the screen beneath the data fields. However, about 70 percent down the screen, the cursor bounces to the top of the screen when I try to add another line. I can work around this problem with the buffer command, but what's happening? Also, how can I print out the legend with a report?*

Herman I. Leon
Arlington, VA

A. The problem you are having with the cursor wrapping around back to the top of the screen is explained in Chapter 4 of the *DataStar Training Guide* (Step 2 — screen space). The default form size in *DataStar* is 79 columns by 17 lines. To design a form wider or longer than that size, you must use CONTROL-B to add columns to the width, or CONTROL-N to add lines to the length. If you do not add lines, every time you try to go past Line 17 the cursor will "wrap" back to the top of the form.

To print out the legend you desire with your report, use *Redit* to add the legend to your report layout screen. The print control column (at the extreme left of the layout screen) can be coded to print your legend line once per report, once per page or with every record. Chapters 6 and 7 of the *ReportStar Training Guide* cover *Redit*. There are further instructions for *Redit* in the *ReportStar Reference Manual*, available from dealers handling Sanyo or MicroPro products. If you have specific questions I can help you with, please write to me again with as much detail as possible.

Q. *Boy, have I got a problem! I purchased my MBC-550 in November of 1983 and have enjoyed it a great deal. My most frequent use is text processing with* WordStar, *and that's where the problem is.* WordStar *seems to be able to drop char-*

acters once in a while. If not in the file and I call it up on the screen, everything is normal, but when I try to print it characters drop at random. I use a Mannesman Tally 160L dot matrix printer, but I'm not sure that's where the problem is because the printer works fine when printing BASIC listings and ASCII files (it printed the 16 pages of PC-File documentation without a glitch).

The problem is intermittent, or at least I haven't discovered the pattern. I have been getting around the problem by printing out the text and then going back and inserting blanks in the spaces that are dropped.

This worked fine on ordinary correspondence quality printing, but the other day I needed a particularly nice quality printout so I inserted a ^B at the beginning and end of the file. This caused the printer to make six passes on each line and the print quality was very good, except that on part of two lines four characters were dropped on two of the passes, causing two half lines at different points of the file to be totally illegible.

This is a problem that I have no idea how to solve. My Sanyo has 128K of memory and I have replaced the single, single-sided drive with two 800K (TEAC 55F) drives and A-OK DOS4 version 1.25, but the problem started before the change.

Do you know if The Word Plus *will run on the Sanyo?*

James M. Russell
Canutillo, TX

A. Charlotte and I each own a Mannesmann Tally MT-160L dot matrix printer. One is used with a Sanyo MBC-1250 CP/M machine and the other is used with an MBC 555-2. We have not had a problem with the printers on either of the machines, both of which are used for some high volume printing with *WordStar* as well as with *InfoStar*.

You might be experiencing a variation of what has happened with the Panasonic printers, (SOFT SECTOR July, '85). There is another thing that you might try: Set the "Buffer Size" from the printer menu to *minimum*. There have been some instances of timing problems with the MT-180L (not the MT-160L that I am aware of) printer and MS-DOS computers.

I do not know if *The Word Plus* will function on the Sanyo. I would suggest that you write to the manufacturer or check the dealer ads in SOFT SECTOR to see if it is available. I don't think that the problem is your word processing software.

Editor's Note:

Some time ago there was a question about the availability of a COBOL compiler for the Sanyo MBC-550 series. I inadvertently advised that there was a product called Nevada COBOL that should be investigated. The Nevada COBOL compiler will not run on the MBC-550 because it is a CP/M only version. The manufacturer of a COBOL compiler called "Utah COBOL" advised that they anticipate having the new product ready about the end of the year. Anyone interested should contact: Ellis Computing, Inc., 3917 Noriegan Street, San Francisco, CA 94122.

I would like to thank them for correcting my error and also for their advice about the up and coming product.

Brian Stone

PRICKLY-PEAR SOFTWARE
QUALITY SOFTWARE FOR THE SANYO 550 SERIES

WILDCARD — This amazing collection of utilities is a must for everyones software toolbox. PAGE through files, PRINT with format options or use your computer as a correcting typewriter, MERGE or COMBINE files, COUNT words/lines/characters, X-REFERENCE words or variables, and more. It work with any MS-DOS operating system 2.0 or higher. **$39.95**

PC STAT — This statistical package computes the most commonly used parametric statistics such as T-test, ANOVA, Pearson Product Moment Correlation, and Simple Linear Regression. Send the results to your printer and save data for future use. Menu driven for easy use. Requires 128K. **$49.95**

FORBIDDEN TEMPLE — If you love adventure, fantasy, magic spells and dungeons with monsters, this is the game for you. The full color graphics features a realistic 3-D window screen display. It has a 3 player option and a save the game option. This two disk adventure requires 256K. **$39.95**

PRICKLY-PEAR DATAPACK — This relational database has 20 commands available for defining new databases, retrieving, sorting, reporting, updating, joining and projecting, etc. **DATAPACK** is compatible with almost any MS-DOS operating system. Write for more information. Now only **$124.95**

PERSONAL FINANCIAL MANAGEMENT SYSTEM — It allows up to 99 income and expense accounts, maintains budgets, graphs, transaction journals, income and expense statements and balance sheets. **$49.95**

VIKING — This famous simulation requires strategy, planning and cunning. Run a Norse holding while you try to become King or Queen. **$34.95**

TRIVIA TRIVIA — Now your favorite computer can be magically transformed into the ultimate trivia game. Play with 1-4 players with 5 catagories (1100 questions in all). Additional question disk available on SPORTS, CHILDREN, BIBLE, and ENTERTAINMENT for **$19.95** each. Game disk with develop program (create your own questions) is **$34.95.**

ASTROLOGY — Calculates natal horoscopes to an accuracy of about one minute of arc. It calculates all planet positions, moon, nodes, midheaven, ascendent, house cusps in 5 different house systems, all aspects and harmonics. All you have to know is time and place of birth. **$34.95**

ALL PRICKLY-PEAR PRODUCTS ARE SHIPPED IN A HANDSOME VINYL LIBRARY CASE.

FOR ORDERS CALL
1-800-223-5369 EXT. 256

Dealer and author inquiries are always welcome. Canadian dealers should contact Kelly Software Distributors, Ltd., P.O. Box 11932, Edmonton, Alberta T5J-3L1 (403) 421-8003

Your Personal check is welcome - no delay. Include $1.50 shipping for each program ordered. (Shipping free on $50.00 or larger orders). AZ residents add 5% sales tax. Orders shipped within two days.

Send for Free Catalog

Send Order To **PRICKLY-PEAR SOFTWARE**
2640 N. Conestoga Ave.
Tucson, Arizona 85749
(602) 749-2864

MasterCard VISA

ASK SANYO

The following questions have been answered by Sandy Waters, marketing manager of the computer division at Sanyo Business Systems Corp. Should you have a question, mail it to: 51 Joseph Street, Moonachie, NJ 07074.

Q. *I do a lot of writing, so anything that speeds up* WordStar *or aids it is great. That is the reason I wanted to use* CorrectStar. *I put in the* CorrectStar *patch and am having all kinds of problems. I can't locate the internal dictionary as requested on the menu. While not a problem, I do not get any text in inverse video.*

Murray Kahl
West Palm Beach, FL

A. The *CorrectStar* patch works for Version 3.30 and cannot be used with Version 3.31. Micropro was unable to provide a fix for the location of the internal dictionary.

Q. *Are there any updates or information that can be obtained from Sanyo direct concerning the 555? If so, who could I write to?*

Mike Booth
Knoxville, TN

A. There is a 555 series software catalog available from Sanyo. Please send a check in the amount of $3 to: Sanyo Business Systems Corp., Computer Division, 51 Joseph Street, Moonachie, NJ 07074, Attn. Product Support.

Q. *It has been rumored that Sanyo is working on an IBM board, something you'd plug onto the 62-pin expansion connector like the Video RAM Board that would, (with appropriate software, I assume) make our MBC-555s really (honestly) IBM compatible. Would you care to confirm this rumor, or is this "vaporware?"*

Victor Frank, Editor
Sanyo PC Hackers Newsletter

A. Rumors are surfacing that Sanyo has discontinued the 550/555 series of computers. Only the 550-1, 550-2 and 555-1 computers have been discontinued due to demand. Sanyo has developed a new video board offering additional 256K of RAM for those people requiring additional memory. The regular video board will continue to be sold.

Rumors dealing with any additional boards for the MBC-555-2 are unfounded.

Q. *In this day and age, one never knows if incoming mail is even read by a human. In case you do answer personal mail, I have two burning questions: First, can you tell me of any user groups in this area for Sanyo? I am located 100 miles east of Dallas. Second, have you done any product reviews on the Silver Fox?*

Hans Clahsen
Bullard, TX

A. The nearest active Sanyo Users' Groups are:

Amarillo Area Sanyo Users Group
Box 2052 WT Station
Canyon, TX 79016

North Texas Sanyo Users Group
402 Biscay Drive
Garland, TX 75043

To our knowledge there are no product reviews of the Silver Fox computer offered by Scottsdale Systems. This system is a modified Sanyo computer and as such carries no warranty from Sanyo. It is also not eligible for support from Sanyo or from Sanyo authorized dealerships.

Q. *I had a Video RAM Board installed in my MBC-555 and had a few questions which my dealer could not answer. When he tried to get the information from Sanyo in New Jersey, he thought it would be better if I spoke directly to them by telephone. When I explained to Sanyo what I needed, they turned on a tape recording saying that it was their policy that all queries be handled by dealers!*

The major problem since having the Video RAM Board installed has been that whenever I try to access a file I get: "Direct Statement in File."

James E. Parlatore
Plainview, NY

A. The tape recording that you refer to is no longer being used. We now refer end-users to our Major Supplier Organizations (MSOs). However, the use of the tape to refer end-users back to their dealers is in full accordance with Sanyo's policy of full-support, full-service dealers.

We have established an extensive and growing support system for our dealers. There is no reason why they cannot utilize this system and your dealer should have done exactly that. You must realize that with the small staff that we have here it is *virtually impossible* to address the complaints, problems or suggestions of each individual end-user. Therefore, until we are at a size that will enable us to do this, we will continue to refer end-users to their authorized, full-service, full-support Sanyo dealers.

With regard to your problem of getting the message "Direct Statement in File;" when trying to access BASIC programs with BASICA this error means that the program you're trying to load had a line feed in its text.

BASIC interpreter programs other than BASICA enter a line feed character when you enter a line feed. The BASICA interpreter pads the entire line with spaces when the line feed is entered. It does not insert the line feed character as the other interpreters do. The attempt to load a program with actual line feed characters in the text will cause the "Direct Statement in File" error.

Your only solution will be to remove the line feeds from the program you are trying to load. Our experience has been that none of the BASIC programs provided on our operating system disks cause this error, so I can only conclude that these are programs being transferred to our computer.

RACKSELLERS

The stores listed below carry **SOFT SECTOR** on a regular basis and may have other products of interest to Sanyo Personal Computer Users. We hope you will patronize those in your area.

ALABAMA
Birmingham — The Computer Store
Madison — Madison Books
Mobile — Mail Tel
Montgomery — Trade-N-Books

ARIZONA
Flagstaff — Datasystems
Phoenix — Gemini Computers
Phoenix — Tri-Tek, Inc.
Tempe — Books, Etc.
Tempe — Computer Library

CALIFORNIA
Folsom — Computers, Etc.
Hayward — 3E Software & Systems
Huntington Beach — Hammer Industries
La Jolla — Affordable Computers
Lancaster — Desert Computing
Los Angeles — OPAMP
N. Hollywood — Levity Distributors
Norco — Wiest Custom Studios
Riverside — Famis Computers
Sacramento — Software Centre International
San Bruno — Home Computing Centers, Inc.
San Diego — Byte & Floppy Computers
San Diego — Programs Unlimited
San Luis Obispo — El Corral Bookstore
Santa Maria — Paradise Computer Systems
Santa Rosa — Information Systems Unlimited
Sherman Oaks — Sawyer's News, Inc.
Stockton — Data Systems West
Upland — Hardings Way News
Walnut Creek — Computer Haven
Walnut Creek — Friendly Computers
Walnut Creek — ECX Computer Co.

COLORADO
Colorado Springs — The Computer Farm
Englewood — Whole Life Distributors
Security — Video Communications & Computers, Inc.

CONNECTICUT
Manchester — Computer Training Institute
Meriden — Total Computers

DELAWARE
Wilmington — Nor-Mar — The Smoke Shop

FLORIDA
Boca Raton — Software, Software, Inc.
Brooksville — All American Electronics
Clearwater — Southern Micro Computer Co.
Ft. Lauderdale — Total Information Centers
Gainesville — Computerized Applications
Jacksonville — AA Computer Exchange
Jacksonville — Florida Computer Resources
Longwood — Electronic Specialty Products
Melbourne — City News Stand
Melbourne — B & B Office Equipment
Merritt Island — Micro's, Etc.
Miami — Computers, Computers, Computers
Miami — Computer Image
Orlando — Advanced Business Systems, Inc.
Orlando — Rainbow Computer Center
Ormond Beach — Micro's Etc.
Point Ornge — Micro's Etc.
Port Rickey — Computer Trends
Sanibel Island — Sanibel Audio
Sarasota — Family Computers
Seminole — Home Computer Discount, Inc.
Shallmer — Discount Discs
St. Petersburg — Software Connection
Tampa — Computer Dimensions
Tampa — Personal Computer Center
Tampa — Southern Micro Computer Co.

GEORGIA
Atlanta — The 64 Store
Columbus — Guild News Agency
Columbus — Southern Computer
Columbus — Alboes Computers

IDAHO
Boise — Western Computer & Office Supplies
Moscow — H & S Computer Supplies
Nampa — Canyon Computers & Communications

ILLINOIS
Belleville — Software Or Systems
Belleville — TPS Computers
Chicago — Hyde Park Computers
Rockford — Learn-A-Bit Computers
Salem — Salem Computer Systems

INDIANA
Ft. Wayne — Bytrex
Ft. Wayne — Digital Perspectives
Indianapolis — Accolade Computer Design
Indianapolis — A Computer Store
Kokomo — Toso Computer Shop

KANSAS
Lawrence — Computer Outlet
Wichita — Wichita Computer & Supply

KENTUCKY
Cynthiana — Accounting Data Corp
Louisville — Software Source
Owensboro — Computer Stall
Prospect — Falsoft, Inc.

LOUISIANA
Gretna — The Computer Supply Store
Sulphur — Home Computer & Software
Thibodaux — Great Southern Computer Systems

MAINE
Bangor — Downeast Specialty Co.

MARYLAND
Baltimore — Computers Edge
Camp Springs — Compudeo
Millersville — Comp-U-Type
Pasadena — RW Electronics Computer Center
Silver Springs — A-OK Computers
Towsend — Greetings & Readings
Waldorf — Waldorf Computer
Wheaton — Micro Computer Co.

MASSACHUSETTS
Danvers — Microcon Computers & Softwarecenter

MICHIGAN
Allen Park — Galaxy Computers
Ann Arbor — University Cellar
Berkley — Family Computers
Charlotte — Computer Options
Dearborn — Alpha-K Computer Co.
Dearborn — DSL
Farmington — ComputerTowne
Fenton — Computer Control Systems
Fenton — Petry Products
Grand Rapids — Bursma Electronic Dist. Co.
Grand Rapids — Programs Unlimited
Mt. Clemens — Computer Plus, Inc.
Muskegon — 8-Bit Corner
Owosso — C/C Computer Systems
Pontiac — MichTron
Rochester — Rochester Book Center
Royal Oak — New Logic Computers
Southgate — Popular Computer Centers, Inc.
Sterling Heights — The Family Room
Troy — Creative Center
Wyandotte — ComputerTech
Wyoming — Gerry's Book Co.
Ypsilanti — Ye Olde Computer Shoppe

MINNESOTA
Minneapolis — Computer Exercise World
Rochester — Datalink

MISSOURI
Aurora — Southland Electronics
Creve Coeur — Alcor Associates
Independence — Digital Enterprises, Inc.
Republic — Franklin Computers
St. Louis — Software Centre
St. Louis — Software Center

MONTANA
Whitehall — Rambyte Computer Institute

NEBRASKA
Omaha — Computers & Components

NEVADA
Las Vegas — Computer Magic
Reno — High-Tek Computer

NEW JERSEY
Lake Hopatcong — Jefferson Computer Center
Lawrenceville — Microcon Computer & Software
Ocean City — The Computer & Software Store
Westmont — American Computers

NEW MEXICO
Alamogordo — New Horizons Computer Systems
Albuquerque — Page One Newsstand
Albuquerque — Programs Unlimited
Albuquerque — Zia Computers
Las Cruces — Zia Computers

NEW YORK
Amityville — Ross Enterprises
East Rochester — Foxx Computer Services
Great Neck — P & T Computers
Hicksville — Innerlogic Computer Center
Lake Grove — Programs Unlimited
Plattsburg — Adirondack Computer Supply
Rochester — Computer Directions
Wappingers Falls — Software City

NORTH CAROLINA
Atlantic Beach — VBS MicroSystems
Jacksonville — 2 M Systems
Mt. Airy — Mountain Computers
Raleigh — Computopia
Raleigh — Crazy Bob's Discount Computers

NORTH DAKOTA
Buxton — Systematics
Riverside — Computer Associates

OHIO
Ashland — Infopro
Canal Fulton — Gemstone Computing
Canton — Micro's Etc.
Cincinnati — Cincinnati Computer Center
Cincinnati — Video Barn
Columbus — The Book Rack
Euclid — Computer Warehouse
Fairborn — Genesis Micro Systems
Fairfield — Microwave Magic
Kettering — Electronic Connexion
Lombard — Complete Computing
Mafield Heights — Programs Unlimited
Marion — Marion Computer Center
North Olmstead — Software Centre International
Ravenna — Alpha Computer Services, Inc.
St. Clairsville — D & K Computer Sales & Service
Toledo — Computer Gallery

OKLAHOMA
Oklahoma City — Merit Computers
Tulsa — Data Station — Tulsa

OREGON
Beaverton — Creative Computers & Electronics
Eugene — University of Oregon Bookstore
Hillsboro — Quest Enterprises, Inc.
Milwaukie — Nomies Video Tec

PENNSYLVANIA
Butler — Software Corner
Downington — Downington Computer Center
Exton — Software City
Philadelphia — Some Hole In The Wall

SOUTH CAROLINA
Charleston Heights — Software Haus
Sumter — Micro-Computer Depot
Travelers Rest — Concurrent Technologies Corp.

TENNESSEE
Knoxville — First Byte Computer Co.

TEXAS
Austin — Electronics Insight
Houston — Computer King
San Antonio — Wagner Bros. Computer Store

UTAH
Provo — Lloyd's Business Machines

VERMONT
Rutland — Computer Marketing

VIRGINIA
Alexandria — Alonso Book & Periodicals
Falls Church — Soft Cost
Gloucester Point — Gloucester Electronics
Norfolk — Micro-Enhancements
Springfield — Fairfax Computer Corp.
Virginia Beach — Beach Business Machines

WASHINGTON
Bellevue — Commercial Computer Systems
Centralia — Centralia Computer Center
College Place — Discount Computer Supply
Federal Way — Compu-Place
Marysville — Crown Microproducts
Marysville — Computer World
Olympia — Computer Center
Renton — Puget Sound Electronics
Seattle — Bits & Chips
Seattle — R&K Enterprises
Spokane — Quality Software

WEST VIRGINIA
Charleston — Salmon's Diversified Office Services
Dunbar — Wilsumco Computer
Morgantown — Computer Closet

WISCONSIN	
Janesville	Emerald Computers
Stevens Point	Mom's Computers
AUSTRALIA:	
SYDNEY	
Kingsford	Paris Radio Electronics
VICTORIA	
Melbourne	Computer Biz
CANADA:	
ALBERTA	
Calgary	Tesserac Computer Systems
	The Computer Shop
Edmonton	CompuSoft
	Computique
	Compu-ware
	Disk and Chip
Grand Prairie	LEW Computers
BRITISH COLUMBIA	
Abbottsford	Clearbrook Computer Centre
Richmond	Computer King
Penticton	Corporate Computers
Port Coquitlam	Compulit
Prince George	Computer King
Surrey	Computer King
	The Computer Dept. of London Drugs
Victoria	Odyssey Computer Services
MANITOBA	
Winnipeg	Micro-Mentor, Inc.
NOVA SCOTIA	
Halifax	Atlantic News
ONTARIO	
Burlington	Burlington Business Systems
Guelph	Neutron Computers, Inc.
Kitchener	Home Computer Centre
London	Town & Country Business Machines
Ottawa	E.T. Wilson Office Equipment LTD.
Peterborough	Computer Support
Scarborough	Scitron
Toronto	Computer Junction
	CP&A
Waterloo	Computer Junction
Windsor	Facts & Figures Computer Service
QUEBEC	
Montreal	Lemond PC
SASKATCHEWAN	
Saskatoon	Memory Lane Computers
ENGLAND	
East Sussex	Mollmerx LTD
PANAMA	
Colon	Pelkard, Inc.
NEW ZEALAND	
Palmerston North	Viscount Electronics LTD
VENEZUELA	
Maracaibo	Byte Computer Center

ADVERTISERS INDEX

We encourage you to patronize our advertisers — all of whom support the Sanyo line of personal computers. We will appreciate your mentioning **SOFT SECTOR** when you contact these firms.

A-OK Computers....25, 27
AA Computer Exchange....41
Advent Products....5
BGW Systems....20
Block Marketing, Inc....17
Bluewater Software....12
Chaucer Software....13
Chryson Computer....51
Comptel....20
Comp-U-Type....52
Computer Associates, Inc....45
Computer Toolbox, Inc., The....3
DELPHI....46, 47
FutureSystems....44
FYI Computer Service....12
Greywolf Technologies, Inc....42
Honeybit Software....45
Information Tech. & Consulting....28
Inventory Systems....28
James River Group, Inc., The....BC
MichTron....IFC, 21
Michigan Software Distributors....42
MVP Software....35
Owl-Services....26
Peripheral Products Distributing....8
Prickly-Pear Software....63
Rocky Mountain Micro....35
Scottsdale Systems, LTD....29
Shoreland....36
Soft Sector Binders....48
Soft Sector Gift Certificate....48
Soft Sector On Disk....50
Software Answer....43
Solution Software....57
Spectrum Solutions....29
Systems Peripherals Consultants....57
Tampa Bay Digital....36
TW Tech....IBC
True Data....17
Viessman & Kohn....43
Wagner Brothers....44

Call:
Jack Garland
Garland Associates, Inc.
10 Industrial Park Road
Hingham, MA 02043
(617) 749-5852

Call:
Kim Vincent
Advertising Representative
The Falsoft Building
P.O. Box 385
Prospect, KY 40059
(502) 228-4492

Call:
Cindy Shackleford
Director, West Coast Office
12110 Meridian South—Suite 8
P.O. Box 73-578
Puyallup, WA 98373-0578
(206) 848-7766